

ITEMS OF INTEREST.

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ORIGINAL COMMUNICATIONS.

SULFURIC ACID FOR OPENING ROOT CANALS.

J. R. Callahan, D.D.S., Cincinnati, O.

It is seldom we see canals in buccal roots of upper molars, or in roots of lower molars, in which a drill can be used; many times in bicuspid and lower incisors, the roots are so flat and thin that drilling is dangerous, yet all these canals may be in such condition that we are compelled to open them for treatment and filling. There are canals that are constricted just at the chamber, sometimes so much so that they can scarcely be found, yet the canal in the root is large and should be opened. There are canals in curved roots and canals obstructed by osseous growths, that if not properly opened, would most likely cause trouble. It is with these difficult canals I wish to deal here.

It has been about four years since I began to open this difficult class of canals by using a 20 to 50 per cent aqueous solution of sulfuric acid and the Donaldson Root Canal Cleanser. To illustrate the method, let us suppose we have an upper molar from which the pulp tissue has been removed, the palatine root being large, can be prepared by any method you may choose. Let us suppose the canals in the buccal roots cannot be found, we would then place a pledget of cotton saturated with the acid solution in that portion of the cavity near the buccal roots and seal it in the tooth for twenty-four or forty-eight hours; on the removal of the stopping, wash out with a dash of water from the syringe; on drying the cavity you will find it white and clean with two dark spots in the vicinity of the buccal roots, showing where the canals can be found. Now we try to enter the canal with the nerve bristle, we find no opening. To make sure we are not being deceived by a constriction, we take a bud drill and follow these stains a short distance; if we find no opening, or a very minute opening, too small for the bristle, we will feel justified in saying they need no further treatment. But, if with our exploring instrument we find a canal, we will carry the acid to the canal by dipping the instrument in the solution, or by means

of the pliers, or better still, the latest pattern of the Dunn Syringe.* Place a drop of the acid in the chamber, and with a No. 5 Donaldson Canal Cleanser pump the acid into the canal; the acid will soften the walls of the canal sufficient to allow the broach to cut its way into the root; the acid will also thoroughly sterilize the canal and everything in it. No germ or spore can live in the presence of (H_2SO_4) in the strength mentioned. The broach may scarcely enter the canal at first, but if you are persistent it will be but a few minutes till the instrument will go quite a distance into the canal, and you reach the end of the root where a much stronger resistance will be met.

The thickened cement at this point seeming to offer a greater resistance to the acid, the canal can be enlarged by using larger broaches, or if the root is straight the "Gates Glidden" drill will follow the canal just made; it is more than likely the apical foramen has not yet been opened; this can be accomplished, if desired, by drilling or by placing a small thread of cotton saturated with the acid in the end of the root and leaving it there over night, and then using the broach and acid at next sitting; after one or two trials you can readily see how crooked or obstructed canals may be opened in a few minutes, and the canal will be in condition for immediate root filling. It must be borne in mind that the rubber-dam should always be in place before the operation is begun; the adjoining teeth may be protected by placing the dam on none but the tooth to be treated.

I confess that at first sight the application of so strong a solution as 50 per cent looks rather heroic†; but four years constant use has proven to me that there is little danger of injuring the tooth or the surrounding tissue, if the operation be controlled by any sort of common sense. We do not hesitate to use arsenic or nux vomica, aconit, argenti nitras, cocain, and scores of other poisonous drugs. We can have the action of the acid under perfect control. I always keep a saturated solution of bicarbonate soda on the case, so that I may stop the action of the acid at any moment. In but few cases is it probable that the acid will go through the apical foramen in quantities or strength sufficient to have any corrosive effect, because neutralizing agents in the dentine will have materially weakened the acid before it can pass through the extremely small opening at the apex of the root. If there be an abscess present, the foramen is likely to be larger, and the condition of the tissues about the apex of the root will be materially benefited by

*The Dunn Syringe referred to is made of glass and rubber with platinum or gold point.

†Good results may be obtained by the use of weaker solutions, but my desire to present a ten-minute paper prohibits the mentioning of many details.

the presence of the acid, even if in the full strength of the solution. In my mind there could be no better agent for the breaking down of the diseased tissues and the positive destruction of all germ life. A case in practice will probably illustrate the point I wish to develop: A lady, aged 25 or 30 years, who had been under surgical treatment for a large fistula at the symphysis of the chin, came to me at the request of the surgeon for examination, and treatment if I thought the case demanded it. By the aid of the electric light I located the trouble in the two lower central incisors; the pulp chambers in both teeth were opened; the canal in each tooth was so small they were practically closed; a drop of the acid solution was placed in the pulp chambers, and with a No. 5 Donaldson Root Canal Cleanser was pumped into the canals; in a few minutes the instrument found its way through the root; the canals were then enlarged by using larger broaches, thereby establishing direct communication from the pulp chamber through the seat of the abscess and through the whole length of the fistula. Several drops of the solution were then pumped through the roots into the fistula, and made their escape through the opening at the symphysis. On the second day it was given the usual antiseptic dressing; on the fourth day the roots and fistula were thoroughly filled with chloro-percha, and kept under observation for a few days. No signs of inflammation appearing, the patient was dismissed as cured. I do not believe the roots could have been opened in a reasonable time by any other method, and I believe that the acid was the best remedial agent that could have been applied at that stage of the treatment. The acid at first attacks the tooth substance vigorously, breaking up the lime salts and corroding or changing the form of the organic substance and forming a new compound, thereby establishing a barrier to the further progress of the acid. Prof. J. S. Cassidy in his valuable text-book, "Dental Chemistry and Materia Medica," page 77, says: "Sulfuric acid attacks the earthy portion, forming insoluble calcium sulfate (Ca SO_4) and at the same time dehydrating the animal or gelatinous portion, which is mainly made up of carbon, hydrogen and oxygen; these two latter elements are withdrawn as already alluded to, leaving the indestructible carbon as a residue, to be incorporated with the insoluble sulfate, producing thus a protecting covering to the unaffected parts beneath against further inroads."

Lemons, so useful and agreeable as a refreshing beverage in spring and summer, may be kept fresh for weeks if covered with water in a glass jar or any other receptacle.

LOCAL ANESTHETICS.

Dr. J. E. Davis.

I have received many letters of inquiry regarding the local anesthetic formula I gave in March ITEMS OF INTEREST.

I wish to say that the words and figures (10 per cent) and (5 per cent) should have been put in parentheses. It means 48 grains cocain, which makes a 10 per cent mixture, and 23 grains antipyrin, (or strictly speaking, 24 grains) makes a 5 per cent solution.

Or, in the plainest words possible:

R.—Pure water.....	oz. j.
Cocain.....	grs. xlvij.
Antipyrin.....	grs. xxiv.
Menthol.....	grs. v.
Oil Cloves.....	drops iij.
Ether.....	drops xx.
Glycerin.....	dram j.

Msce.

By adding one drop of analin, the mixture is made a beautiful pink. This makes it easier to see the escape of the fluid while injecting around the teeth, and is an advantage only in that way.

The anesthetic will not deteriorate with age, as the antipyrin effectually prevents it.

Some may consider a 10 per cent solution of cocain too powerful, but my experience is that nothing less will give the best results, and I have no more trouble with it than I do with a 4 per cent solution.

Some write me that they are in the habit of using eight or ten syringesfull of some local anesthetics on patients at one sitting.

They ought to know better, however weak the mixture is. Two or three drops of my anesthetic, properly injected around a tooth, is sufficient. The idea is to get it down well into the tissues around the root. I should not use more than three or four ordinary syringesfull on any patient at one sitting. After injecting around three or four teeth (where there are many to extract), try the gum lance and see if there is any sensitiveness in the gums. Inject or wait till there is none, then extract.

The bleeding of the gums causes the escape of much of the anesthetic after extracting, thus preventing absorption into the system. The glycerin is used principally to thicken the anesthetic, prevent its absorption into the system, and also prevents syringe from corroding. The antipyrin checks circulation of blood in gums and has anesthetic power as well as prevents the mixture from deteriorating. Oil cloves has anesthetic qualities; so has menthol. The ether acts only as a solvent.

In several years' experience with this anesthetic I have had only two or three cases where the system seemed to be disagreeably affected. They were ladies who were naturally very nervous and hysterical, and they all remarked that they always "had a time" when they had a tooth extracted. None of them seemed to think the anesthetic had much to do with it. They only had from one to three teeth extracted. Several patients have told me they could feel a little tingling in their systems, but it was not disagreeable. Cold water on a towel, applied to the face, is all that is generally needed. Plenty of fresh air, of course, is essential. Black coffee would be good in extreme cases. I have nitrite of amyl at hand, but seldom use it, as it is too powerful. One good inhalation sometimes causing dizziness. It is much more powerful than chloroform.

A good quality of cocain is essential. The crystals should be clear and glistening like coarse salt. Boehringer's muriate of cocain I have found to be excellent. This is a German preparation. You should be able to get it at the rate of from six to eight dollars per ounce. One ounce makes ten ounces of anesthetic. Dental depots would do well to keep cocain on sale at a reasonable price.

I wish to say that the sticking of the hypodermic needle is the most disagreeable part of the operation of extracting where a good local anesthetic is used. I usually apply the preparation to the gums first on cotton pellets; and in extreme cases of sensitiveness touch the gum on both sides of tooth with pure carbolic acid on small pellet of cotton. This turns the surface white, and causes sloughing of the skin where touched, but it lessens the sensitiveness greatly in introducing the needle. The lips should not be allowed to come in contact with the carbolic acid.

Our loose, foolish, heterogenous way of throwing letters together to form words is ridiculous. It is so void of all rule and sense that it takes years of tedious memorizing to learn to spell; and even then few become good spellers. All of us are perplexed. Instead of the letters of a word showing its sounds, we are obliged to memorize tens of thousands of puzzling, contradictory, outlandish combinations that are a disgrace to civilization. Our spelling should be phonetic; then the letters in every word would give its exact pronunciation. It would require more letters, and but one sound to each letter; but as we have less than forty sounds in our language, this would not be difficult, and then spelling would spell itself.

A RARE AND INTERESTING CASE.

E. S. Talbot, D.D.S., Chicago.

The following interesting case is now under my care. It is so uncommon I deem it of sufficient importance to not only place it on record, but to ask if any one has had a similar one, and also ask the cause. Mr. J. J. McG., a retired business man, fifty-eight years of age, has lost all his bicuspid and molars in the upper jaw. For years he has been using the incisors and cuspids for cutting and chewing his food; the result of which is, the lower teeth have worn away, exposing and destroying the pulps of the central incisors. I made and fitted a plate on the upper jaw, bringing the jaws to their natural position, as a result of which quite a space exists between the upper and lower incisors. For the past two weeks I have been treating the roots of the lower central incisors by filling them. Now for the mystery. A sharp edge existed on the posterior surface of these lower incisors. This being removed, the two teeth with dead pulps became so sensitive where they were ground away that the least touch could scarcely be borne. The pain was precisely like that of any tooth with a live nerve ground down to the dentine. After repeated applications of nitrate of silver for two weeks the pain ceased.

No pulp being present, what produced the pain?

[Inflammation by irritation of the alveolus.—ED. ITEMS.]

TIN SHAVINGS.

Dr. S. G. Perry, in the New York Odontological Society, said: At the meeting held in Brooklyn a week ago last Monday, Dr. Darby read a paper on the subject of filling-material, and took occasion to speak very favorably of tin-foil, and also to show before that society some specimens of tin which had been shaved off a revolving wheel of block tin attached to a lathe. He made the claim that pure tin, when prepared in that way with a fresh surface, possessed an adhesive property which is not found in tin-foil, and he showed some specimens of the tin prepared, and a large number of teeth which had been filled by his students, where the fillings had been built up to quite an extent,—as much as would sometimes be seen with gold, which, of course, would not be possible if the tin used had not a considerable adhesive property.

In his laboratory he exhibited to me his method of shaving

off the tin, and I asked him to allow me to present some of the shavings to the members of this society. I had my secretary put up fifty packages in this form, hoping there would be enough so that each one could try it. When it is first shaved off from the wheel there is no doubt it has cohesive properties which we have never found in tin-foil. Dr. Darby has used tin in this way for about eighteen years. I have tried it in quite a number of cases since he has shown it to me, and it certainly works well. How long that cohesive property will continue I do not know. I suppose it will be lost after being exposed to the air for awhile.

International.

THE USE OF THE RUBBER-DAM.

Garrett Newkirk, M. D., Chicago.

The rubber-dam is perhaps the most valuable and indispensable adjunct to dental practice which we possess. Nevertheless, as we have seen, it may be a means of infection or irritation by reason of original uncleanness or repeated use of a given piece; and it may do harm by mechanical constriction of the gums.

Every one has noticed the whiteness which ensues all along the gingivae by the passage of a gold band on the root of a tooth. This comes from pressure on the arterial vessels, shutting off for the time being a portion of the blood supply to the parts.

Exactly the same thing is likely to take place through constriction by the rubber-dam, particularly whenever it is forced high up by ligatures or clamps. The parts of the gum most likely to be injured seriously by this cause are those which lie within the interproximate spaces.

We are very likely to make the holes in the dam so near together that when we have placed it in position the strip of rubber between any two teeth is but a mere string, not wide enough, as it should be, to cover smoothly the interproximate gum tissue. Inevitably, therefore, the gum is caught in one hole or the other, and held tightly between the elastic string and the tooth. The circulation in the part is sadly impaired—and there is little doubt that it is sometimes entirely cut off.

Review.

I have had a case exactly as stated in ITEMS OF INTEREST for March, page 164, Question 140. The patient was a young lady of 19 years, weighing 170 lbs. There was not the slightest decay of any of the teeth. Reflected light revealed an opaqueness of both upper laterals, which showed that the pulps had been devitalized.

An opening was made from the palatine surface and the teeth treated for a long time, but with no satisfaction. The fistulous opening at the left lateral had existed for only a short time, but pus had been oozing from around the left cuspid and bicuspid for more than a year. On pressure of the palatine surface of the tissues a great amount of pus would run out. On questioning, it was ascertained, that at the age of eleven the girl had received a severe blow in the mouth from a rubber ball. This, I think, was the cause of the death of the pulps. The teeth were finally extracted, which revealed the fact that the pulps had died early in life. On probing through the opening made from the extraction of the left lateral, it was found that the pus had burrowed itself into the cavity of the antrum, and along its track dead bone was found. This was removed, and a permanent cure resulted. This was five years ago. There has been no trouble since.

S. W. Johnson, D.D.S., Llano, Tex.

HOW TO READ.

Rawson, Philadelphia.

Never overload the brain. Indigestion of the stomach is a misfortune; indigestion of the brain, a calamity. Rules that govern one, govern the other. The brains of some are strong, others weak, and the food one craves another loathes. Keep the attention fresh, close, direct; read sparingly, studiously. This will not make a voluminous reader, but will gather distinct facts and make them your own. The crystallization of entertaining knowledge around a beautiful thought is a happy system of education.

Idiosyncracies and coincidences exist everywhere; intellectual concurrence and reciprocity are rare. A book that startles the world may simply appeal to ordinary intelligence—an every-day thought on an every-day topic: startling only in manner, not matter. It is the unexpressed conviction of the world which creates intense reciprocation from a purely cosmopolitan mutuality.

Realize the necessity for completeness; cultivate a zeal for knowledge and apply the knowledge to the best advantage. Avoid being a "learned fool." Be liberal; use sound judgment and cultivate sturdy common sense.

Merciless criticism aids mental digestion. Because a statement is printed is no excuse for swallowing it without discrimination. One of the most colossal prevarications of the nineteenth century created intense excitement simply because the author frankly confessed the entire fabrication a barefaced lie. The pub-

lie reciprocated the confidence imposed in it by clamoring for the work, with the result that its sale was almost unprecedented. Was it an evidence of depravity, or a morbid curiosity to learn the nature of that lie? Books that appeal to intelligence cannot fail to do good.

When reading, make it the sole business of your mind. Don't wade through chapter after chapter with your thoughts wandering afar off, like lost sheep. Concentrate the mind, if even for a few moments, and note the result. Reading for the sake of "killing time" is murderous. I don't believe a book was ever written with the sole purpose of depraving morals, but rather to magnify the evils of the world for the benefit of sensible people who would profit by the exposure, and scorn the "fascination" that infatuates weak minds.

Nothing more clearly demonstrates the truth of "absence of mind" than absence of mind when pretending to read. This is not reading—it is rank heresy—a direct violation of the laws of common courtesy. Would an author feel flattered to know that his remarks were either "skipped" or thoughtlessly read with no intention of learning something?

Read sensibly, honestly. When fatigue creeps on, stop at once. Overexertion spoils the effect of new-born thoughts, and straining the mental, weakens the physical. But without close attention nothing permanent is acquired. There must be a judicious rejection of chaff and thorough assimilation of the wheat. To do this requires good judgment and clear-headedness. Think clearly, and when that peculiar hunger for "something good to read" creeps on, feed it just as you would your stomach when it craves "something good to eat." Then note how wonderfully well you assimilate knowledge, and how entertainingly you can converse on the latest literature, where formerly, even after having "read" the article, the knowledge that you hadn't *read* it after all, is realized with sickening force.

" Who reads
Incessantly, and to his reading brings not
A spirit and judgment equal or superior,
Uncertain and unsettled still remains,
Deep versed in books, and shallow in himself."

TO PRESERVE EXPOSED PULPS.—Where there is no lesion, except simple pulp exposure, clean out all débris and decay as thoroughly as possible, wash out with water of the proper temperature, dry out cavity, and touch exposed surface with either sulfuric acid or nitrate of silver. These chemicals are superficial in their reaction on the

pulp, and have the effect of coagulating the plasma, thus favoring a protection covering.

To prevent the filling from pressing on the pulp, a concave dish or cap of lead should be worked out and placed lightly over the exposure, being firmly fixed by wax about its edges. You can now proceed to prepare and fill the cavity, using the precaution that no extreme pressure is brought to bear on the cap.

D. E. Wiber, D.D.S., National University, Washington, D. C.

DISINFECTING TOOTH BRUSHES.

Gustavus North, Springville, Iowa.

Much has been said and written about disinfecting instruments, cuspadors, etc., but nothing of disinfecting or purifying tooth brushes, which are in daily use, and are, doubtless, one of the greatest fields for the development of microbes.

The thorough disinfection of tooth brushes should be impressed on the minds of all patients.

After a tooth-brush has been used, it should be purified with a properly-flavored germicide, then wiped dry.

A solution of 1-1100 hydro-naphthol will destroy all microbes and purify the brush. Soluble tablets of hydro-naphthol will dissolve quickly in hot water. These tablets are of fixed weight, and a solution of any desired strength can be readily prepared.

Hydro-naphthol is non-irritant, non-corrosive, odorless and harmless; and a good antiseptic and disinfectant.

POLISHING RUBBER PLATES.—Perhaps the greatest difficulty experienced in constructing an artificial denture with plain teeth is the polishing of the pink or granular rubber rim, the festoons of which are hard to follow with the wheels and cones ordinarily used for the surface. This may be accomplished easily by the use of soft rubber tubes one and a half inches long, cut from the tubing used on the Bunsen burner. Run the tube on the cone of the lathe one and a quarter inches, leaving the outer end project a quarter. This projection serves as a cup, which, with moistened pumice, will reach and nicely polish the curves and depressions between and around the necks of the teeth. The entire outer surface of the cylinder is useful in polishing the rest of the rim surface, and the acute depressions in the lingual surface of the plate.

Dr. F. E. Battershell.

CURRENT THOUGHTS.

MIXING PLASTER OF PARIS, AND TAKING AN IMPRESSION.

Dr. James W. White, Philadelphia.

The practice of some is to add the salt to the water; others consider that the best time for adding it is when the plaster is ready for use, and just before it is put in the tray,—the salt thus beginning to act as the plaster is introduced into the mouth, allowing the use of a thinner batter, and yet insuring a speedy setting. The addition of the salt prevents the plaster from becoming as hard as it otherwise would; but for impressions this is not an objection.

Plaster should not set very rapidly, nor should it be very long in hardening, but if a choice has to be made between the two conditions, the latter is to be preferred, for the slow-setting plaster gives the operator ample time for preliminary management. He should never be hurried, and this is likely to be in quick-setting plaster. This is of more importance than is generally considered. If it is desired to retard the setting, a solution of white glue, sugar, molasses, or vinegar may be added to the water with which the plaster is mixed.

The suggestion has been made that three or four drops of oil of wintergreen, or cinnamon, added to the water with which the plaster is mixed, agreeably modifies the objectionable taste of the plaster.

Dr. L. C. Ingersoll advises adding to plaster of Paris from one-third to one-half of pulverized pumice, according to the strength of the plaster. By this means he claims that adhesion to the teeth is almost entirely prevented, and that there is less liability to fracture of the impression on its removal from the mouth.

Some always take an impression first in wax, giving it a lateral, anterior and posterior movement in the mouth, or subsequently enlarging it by cutting, so as to give space for the batter of plaster with which the final impression is afterward taken. This method is considered specially applicable when the mouth is not uniformly hard,—in some places soft and yielding,—the object being to allow trimming off the impression corresponding to those places where the tissues are yielding, that a greater depth of plaster may be brought into contact with them, which, being softer than the wax, will allow them to retain their relative normal positions.

After the wax impression is taken for this purpose, the surplus wax should be trimmed off, and the surface scored, to make retaining-points for the plaster. To prevent the wax from leaving the tray, its surface should be warmed over a spirit-lamp.

For a full upper impression wholly of plaster, the mouth should be carefully examined, and the proper tray selected, one as near the size of the jaw as possible; if it is a high arch, the center of the tray should be filled with wax, and with the same material any deficiency in the size of the tray at the palatal margin or around the outside edge, especially over the cuspids, should be supplied. Many failures are unquestionably attributable to a want of support in the summit of the arch, admitting the too great bulk of plaster to drop before solidification takes place; a difficulty obviated by having a smaller quantity of batter sustained by a dome of wax. Some operators recommend a rim of wax to be carried entirely around the periphery of the cup, including the posterior margin; the object being to enable the operator to press in the plaster above the alveolar border, and to prevent in part its being forced too rapidly or in too large quantities over the posterior margin; but care should be taken that this rim be not deep enough to press unduly on the soft palate, and distort the impression.

If the alveolar ridge is very deep, or presents the form of a fissure, making considerable space between the tray and the floor of the palate, the tray should be driven up on the mold, so as to make it correspond with the form of the mouth; otherwise the plaster will not be carried to the deepest portion of the arch, and thus there will be an imperfect impression of the palatal surface. Another plan is to take up a small portion of plaster on the finger or a spatula, and apply it to the deeper parts of the arch just prior to the introduction of the tray; the patient being already seated, with a slight forward inclination of the body.

When about to take a plaster impression, a towel or large napkin should be spread in the lap of the patient to receive any excess of plaster which may be dislodged.

The patient may be directed to dry the mouth with a soft napkin if there is an excess of saliva; but it is rarely, if ever, necessary in taking impressions of the upper jaw, and some mouths are naturally so dry that the difficulty is rather to prevent the plaster from adhering too firmly to the tissues. In such cases, it would not be well to absorb what little moisture there might be. Some operators always direct the mouth to be rinsed with warm water, which, it is claimed, by removing the mucus, facilitates a more even flow of the plaster; diminishes its liability to excessive adherence to the membranes, and produces a smoother and more delicate

impression. Some always brush over with glycerol, if the mucous membrane appears abnormally dry.

Before introducing the tray, some operators instruct the patient to breathe through the nostrils, considering that the liability of fragments of plaster being drawn into the pharynx is much increased when the patient breathes through the mouth.

The late Joseph Richardson took, however, an opposite view, arguing that in the act of breathing through the nose the velum palati is depressed to cut off the passage of air through the mouth, and is thus brought more immediately in contact with any portion of plaster that may be protruding from the heel of the tray; that the stimulus of contact produces involuntary contraction, and that thus fragments of hard plaster may be drawn back into the fauces, producing the very evils which nose-breathing is thought to avoid; and that if patients are instructed at all in this respect, they should be advised to breathe through the mouth.

The required quantity of water—say two tablespoonfuls—should then be put in a bowl or teacup, a pinch of salt added, and plaster sufficient to make a batter about the consistence of thick molasses should be sprinkled in. If put in carelessly, it will become lumpy, and may prove disastrous to the impression. The batter should now be well stirred and transferred to the tray.

The filling of the tray should be commenced before the plaster has set to the point suitable for insertion in the mouth. Sufficient should be used to insure the filling of all spaces, with a small quantity to spare. A knowledge of the amount necessary can only be acquired by experience; too much makes it difficult to insert, and will also cause a larger amount to be forced over into the mouth—a result always disagreeable to the patient and unpleasant to the operator. The rule generally given, to wait till the plaster fails to fall from the spatula, is an error. It is then too stiff to put into the tray; allowance must be made for the time required to place it in the mouth. So long as the surface glosses, when smoothed with the spatula, and does not begin to leave sharp edges, it will take a perfect impression with very moderate pressure. The perfection of the impression will mainly depend on its insertion when the smallest possible pressure will be required; but if too thin, difficulty will be experienced from its spreading and running from the tray.

The patient should be seated—a common chair is preferred by many operators—and instructions given as to position and the reasons therefor; the patient inclining the body slightly forward, and in readiness when the plaster is introduced to allow the head to be thrown still more forward—the object being to determine

any excess of plaster to the front of the mouth, and prevent it from falling into the fauces. Too many directions and an ostentatious preparation will, however, cause failure with timid patients, by inducing excessive irritability, from a magnified fear of the operation.

When the tray is introduced into the mouth, it should be passed up to the palatal arch, touching the posterior of the palate first. This is to throw all excess of plaster anteriorly. It should then be brought gently up over the anterior surface, till the parts are completely imbedded and the plaster is seen to protrude around the margins of the tray, and held there with no more pressure than will suffice to keep the tray in place till it sets. The tray is best held in position by pressure of the second finger against its palatal portion. At the same time the lips should be extended and brought down over the tray, subsequently making pressure on the lips and cheeks, to force the plaster well up on the outside of the ridge. The liability of having an excess of plaster pass backward toward the pharynx, is a real danger. A serious accident of this nature might easily occur. It not infrequently happens, when the tray is pressed anteriorly first, that a large excess will pass over and interfere with respiration. This excess is liable to fracture when hard, and, becoming loose, may pass into the pharynx and endanger the patient. To obviate this, it has been suggested to place around the palatal surface of the tray pieces of string, extending slightly beyond the posterior margin, which, becoming imbedded in the soft plaster, will draw out any portion that may become loose. This precaution is, however, unnecessary, if care is taken not to use an excess of plaster, to bring the posterior portion of the tray first into contact with the palate, and to have the patient lean well forward.

When the tray fairly covers the ridge, a slight vibratory motion should be given to it to settle the plaster and dislodge any bubbles of air; at the same time the head of the patient should be thrown well forward and the body still more inclined. To prevent the formation of air bubbles in the roof of the mouth the plaster must be high in the center of the tray.

When the alveolar ridge is much absorbed, the foldings of the mucous membrane should be prevented from becoming involved by pressing them out with the fingers. The tray should be retained in exact position with great care till the plaster sets. The operator should always hold the tray, never trusting it to the patient. It should be retained in position, not by the handle, but by one or two fingers of the operator's right hand on the center of the tray, with his left hand resting on the patient's head.

To judge when the plaster is hard enough to remove from the mouth, the evolution of heat, as the result of the chemical action which has taken place, will be a guide. It has been recommended to test by the fracture of the plaster left on the edge of the bowl in which it has been mixed; but, while some say that the secretions of the mouth feed the plaster and prevent it from hardening as soon as that in the bowl, others contend that the heat of the mouth causes it to set somewhat quicker. The safest plan, therefore, is to test that on the edge of the impression, or to know by previous trial the "behaviour" of the plaster used, and determine by the watch.

On withdrawing the tray from the mouth, the upper lip should be stretched upward, at the position of the second bicusps, with the left hand, so as to admit air between the plaster and the gum; at the same time the tray should be pressed downward with the right hand. If the plaster is left in the mouth too long after it hardens, there is likely to be a strong adhesion of it to the mucous membrane, owing to the absorbing property of the plaster. No excessive force should be used in the withdrawal, as there is liability to tear the membrane; the only plan is to coax it out. The tissues of the lip and cheeks should be lifted alternately, and, if necessary, the patient directed to give a slight cough; or make upward pressure on the handle of the tray, which will depress it at the heel; or, with a suitable instrument, the soft palate should be pressed up to admit the air; or, preferably, through a hole in the center of the cup, a blunt instrument may be passed up to the palate, and thus admit air between it and the impression. By this means there is less danger of injuring the impression than by introducing air at the sides, which can only be done by depression of the tray. These means will generally, with a little patience of the operator, effect its removal without damage to the mouth or to the impression. A pair of foil-pliers should always be at hand, to take out of the mouth any pieces of plaster which may break in the act of withdrawing the tray. These should be rinsed clean of saliva, and replaced, after hardening, with great care and nicety.

It has been recommended, to facilitate the removal of an impression, to make a small hole in the center of the tray, and pass through it a fine cord or thick thread, so that a quarter of an inch of its end shall project from the surface of the impression-material. Before removing the impression draw out the cord, and thus admit air to the vault to facilitate the detachment of the impression.

As a further aid in overcoming persistent retention of an impression, ask the patient to perform the act of swallowing.

In taking impressions of the lower jaw, for a full denture, the

tray should be adapted to the case in hand as to depth and shape of rim, which should extend downward on its lingual extremities so as to secure an accurate impression of the lingual aspect of the ridge. It is necessary to allow the plaster to set till it will not drop from the inverted impression-tray. It should be then placed in the mouth, and carefully depressed at the posterior portion first. When there is an excess of saliva, care should be taken to have the mouth of the patient dried with a soft napkin. After filling the tray flush with its margins, the operator should introduce the tray into the mouth in the manner heretofore described, standing to the right and back or in front of the patient. If the latter position has been chosen, after having adjusted the tray properly over the ridge, the first two or three fingers of each hand should be placed on the top of each side of the tray, over the position of the bicuspids, and the thumbs underneath the jaw, steady and firm pressure being made till the ridge is wholly imbedded, the patient sitting in the position recommended in taking upper impressions. If the operator stands behind the patient, pressure should be made on the tray with the thumbs, and counter-pressure with the fingers under the jaw, care having been taken to draw out the cheeks before making pressure on the tray, as the soft tissues are apt to overlap the posterior margin of the alveolar border. The patient should then be requested to thrust the tongue out of the mouth as far as possible, so as to free the soft tissues from entanglement. To remove the tray, press the finger of the left hand against the inner surface of the cheek, outward and downward, so as to admit air under the impression.

In middle life, or in old age, where there has been great absorption, the muscles of the mouth are on a line with, or sometimes higher than, the maxillary ridge; the outer edge should then be turned out at a right angle with the body of the tray. If the edges of the tray are too straight, or the two sides are in nearly parallel lines with each other, the outer edge presses the muscles down over the maxillary bone, and when the reverse is taken from it there will be a sharp-ridged cast; and when the plate is made to fit, the edge will cut the muscles, and make a sore mouth. But by using a tray with the outer edge turned out, so as to drive the cheek out, the muscles are drawn on a line where they are connected with the ridge of the jaw, and more in their natural position. When a plate is made, the muscles will have a free play under the edge of the plate, and will not lift it from the jaw and float it around the mouth.

In taking impressions for partial cases, to prevent difficulty in the withdrawal of the impression, the shape and position of the

teeth should be carefully noted, and manipulations made accordingly. Before taking the impression, undercuts, etc., should be looked for, which must serve as a guide in the withdrawal of it. Where the teeth are wedge-shaped, or conical, or straight and short, there will be no difficulty; but where they are long, or inclined, or where the necks are smaller than the crowns, they will not deliver without fracturing the plaster. In some cases a little wax, pressed into interdental spaces, may serve a good purpose by preventing the plaster from entering. The impression should be removed from the mouth, either before the plaster has set so as to make it liable to fracture, or else allowed to remain till it is sufficiently hard to make a clean fracture. There is danger, however, if there are loose teeth in the mouth, of extracting them in the removal of the impression.

In such cases it has been recommended to dry the teeth, and put a cylinder of wax around them; and, if great care and nicety is observed, this plan will give good results. It has also been suggested to take fibers of raw cotton and place in the tray where the teeth will strike, and run some thin plaster over it in the form of batter. This will prevent the plaster from breaking up into such fine particles as it otherwise might.

Various plans have been recommended for taking impressions of difficult cases. The following embrace all that are thought to be of special importance:

Having taken an impression in wax, a metallic die and counter-die are made, as for ordinary plate-work. From this a plate of brass, tin, or zinc is struck up, to be used as an impression-tray, the palatal surface of which is coated with a thin batter of plaster, and applied to the mouth in the usual manner. Others prefer taking a wax impression, from which all those portions indented by the teeth are subsequently cut away, allowing only so much of the wax surface to remain as corresponds with the artificial base to be supplied. This is subsequently employed as a tray with which to take a plaster impression.

The spaces between converging teeth may be first packed with thick mixed plaster (or with modeling composition or wax); and the sides sloped smoothly, so that when sandaracked and oiled, the subsequent impression will, on removal, leave the sections in the mouth. They can then be laterally displaced and returned to the impression.

A process for taking plaster impressions for entire superior dentures was suggested by Dr. A. Westcott. Take a wax impression as a preliminary step. When cold, carve with knives curved laterally, and with bent gouges, with great care. After deciding

as to the proper form and size of the impression, and in a general way trimming off all the wax which is not needed, make a cut in the wax one-eighth of an inch deep on the inside of the impression, and about one-eighth of an inch from the margin. This cut should follow the entire margin of the wax impression, and across the palatal surface. Now carve out the entire surface of the wax to the depth of from one-eighth to one-quarter of an inch, except a narrow strip, perhaps one-quarter of an inch wide at the extreme front, and at the place of greatest depression in the wax. When this impression is replaced in the mouth, it rests firmly on the unchanged strip running across the rear end of the palatal arch, and bears on the uncarved strip at the front of the impression.

An impression having these resting points can be held steady by pressure bearing upward against the center of the impression-tray long enough for the plaster to set.

There is a liability, in partial cases, that the plaster will break in a number of pieces. To determine in advance the lines of fracture, Dr A. G. Bennett suggests that the impression-tray be warm and a narrow strip of base wax attached to its floor, dividing the space between the outer rim and the palatal projection; a like strip running from this to the rear of the tray. The tray is then to be oiled, filled with plaster, and the impression taken. The tray comes away leaving the plaster adhering to the teeth, the wax remaining in the impression, and serving as guides to show where it may be cut. The impression may then be removed, the pieces replaced in the tray and attached with fresh plaster.

Dr. A. Wescott, describes a plan for taking impressions for partial cases with plaster: Saw off the rim of an ordinary tray with a fine saw, and again couple it with the palatal portion by brass dowels. Take the rim and solder on to it three short pieces of brass wire,—one on the front and one on each side of the rim. Next, solder on three short pieces of brass tubing, corresponding in position and in size of hole with the wire dowels already soldered on to the rim. By this arrangement the rim may be removed and replaced at pleasure.

As it is desirable to bring away the wax and plaster with the palatal portion of the tray, provision must be made against the cleavage of the wax from the tray. This may be done by holding the tray over a spirit-lamp, and securing an adhesion by melting the wax; but a much easier way is to perforate the base of the tray. In taking the wax impression preliminary to the plaster impression, the wax will press through these orifices, and by spreading out like the heading of a rivet on the bottom of the tray, make strong and secure holding when the wax is cold.

These orifices will be found a convenience in any case of plaster impression-taking. When the two parts of the tray are placed together so as to form a tray of the usual form, and the wax impression taken as above described, then pass a thin blade through the seam or joining, and separate the wax so that both rim and wax may be easily taken from the lower or palatal portion of the tray. Separating the two parts on this line leaves all, both plaster and wax, within the rim of the mouth, while the palatal portion is removed. To remove the portion embraced within the rim easily, and without unnecessary crumbling, spring off first one end of the rim and then the other, and remove the rim from the mouth. Then, by a thin, though not sharp, knife, or firm spatula, divide the plaster, which is still in the mouth and outside the teeth, into three sections, which may generally be removed without breaking it elsewhere, and in a way that the pieces may be readily returned to their proper places. There may be cut-offs of wax placed where it is desired the plaster should separate, so that the sections may be very easily removed. These cut-offs consist simply of thin plates of wax set up edgewise, so as to divide the plaster while thin into any number of sections, and reach from the rim of the tray to the teeth or gum.

In taking an impression where there are teeth and spaces of naked gums between them, and especially where the teeth are bell-crowned, it is well to set up thin slips of wax from tooth to tooth, or else leave such cut-offs, when curving the wax, to make room for the plaster. In taking impressions for partial sets, there is not the same necessity for providing against the rocking of the impression-tray, as the depressions made by the teeth in the wax are not obliterated by the curving, and these will serve as the steady-ing-points when the wax is returned with the plaster for the final impression. By carrying out these suggestions, there is no more difficulty in getting a perfect impression of every part in mixed cases than pertains to full sets where the gums are entirely naked.

A method recommended by Dr. S. H. Guilford is to place pieces of wax on the tray at points corresponding to the natural teeth remaining in the mouth; then, keeping the wax warm and plastic, fill the remainder of the tray with plaster.

Dr. J. F. Leaming proposed a method of taking upper impressions with plaster without a tray: After carefully examining the mouth, mix a sufficient quantity of plaster to the consistency requisite to pour into a mold, adding a little salt, if necessary, and stirring constantly, till it gives evidence of setting. Care should be taken not to delay too long, as better results are obtained while the plaster is quite thin. Distending the mouth slightly with

the left hand, introduce the plaster quickly, but not hurriedly, on the point of the spatula, first covering the arch till overfull, then on the buccal aspect of the gum, beginning posteriorly on both sides, and finishing anteriorly, pressing the plaster carefully to the gum in front with a napkin. Remove by first pressing the impression at the sides carefully downward. If any portion of the rim is imperfect, trim down as far as needful, wet the impression, reapply it to the mouth, and build up with fresh plaster.

For a full case, where the gum in front is soft and flabby, it has been recommended to use soft wax for a first impression, making the wax adhere to the tray; when cold, cutting a deep groove, in which the softer portion of the gum can depend, leaving the waxed ridge quite high all around, and if the roof is hard, having the wax sufficiently high at that point to press it gently. The plaster should be as stiff as can be used without pressing the soft tissues out of place.

Dr. F. C. Green, for a full lower impression, recommends a very narrow tray, one not much wider than the alveolar ridge; the tray to be filled with quick-setting soft plaster. After removing the tray from the mouth, the edges are to be trimmed, and a thin layer scraped from the entire surface, especially under the tongue. The impression is then to be thoroughly soaked in water, filled with plaster not thicker than cream, and replaced in the mouth with gentle pressure, care being taken that the tongue is raised and that the muscles are not impinged on.

Dr. C. S. Chittenden recommended the following plan for making a tray for special cases: First take an impression in wax and draw a cast from it; then take a piece of sheet lead and fit it to the cast as nearly as possible, by rubbing down with burnishers, something like a trial plate, leaving it a little higher on the edges than a plate which is to be worn would bear to be. Use this lead pattern or trial plate for an impression-tray; but as it would not be stiff enough to answer that purpose of itself, punch some small holes through the lead, and pour plaster of Paris over the whole lingual surface, letting it run through the small holes in the lead, so as to bind the plaster firmly to it in the same way that mortar is bound to the lath on walls and ceilings. When the plaster has set, cut away all that will be in the way, and having prepared the plaster for the impression, pour it in this made-up tray, and, putting it in the mouth, press it home in the usual way.

For partial cases where the remaining teeth incline inward, Dr. Stewart J. Spence cuts from the selected tray its buccal flanges as far forward as the cuspid portions, and slits the vault part nearly to the labial flange, so that the two wings can be readily conformed

to the width of the arch and to the depth of the vault. Pulverized potash-alum is added to the plaster, which is mixed moderately thick and piled on the vault part of the tray, extending to its front flange. The fingers can be used to press the plaster with the tray into the vault, while the protruding plaster is all scraped from the buccal cusps and surfaces of the bicuspid and molars. When the plaster has been given time to become very hard, it is cut from the grinding-surfaces of the bicuspid and molars so that these may, by the index finger wrapped with thick rubber-dam, be successively forced outward and so loosened from the plaster that it may be readily removed with the tray.

Dr. George F. Reese suggests the following method for special cases: Cut a hole through the floor of the tray, and over this place sheet wax, and with the same material make a shallow cup or reservoir on it; on the flange and across the palatal edge of the tray form a rim of wax. After the introduction of the tray, the plaster in the reservoir can be manipulated with the finger, forcing it up in the arch.

For partial sets, melt wax over the tray. Add softened wax to take an accurate impression. Cool this in water and cut away the wax wherever the plaster is specially desired to go; rim the cavities with sheet wax to form reservoirs. After trial in the mouth, fill in with plaster, taking care to have the reservoirs full, but no plaster in the impressions made in the wax by the teeth.

It is sometimes advisable to take a preliminary impression in modeling composition; cut a groove across the palatal part of the impression, and from the groove raise a wall of soft modeling clay. Then gloss the surface of the compound over the spirit-lamp flame, spread an even coating of soft mixed plaster, and take the impression as usual. The soft clay will not disturb the palate, yet will perfectly prevent the passage past it of the plaster.

Dr. W. S. Payson suggests the following method of making an extension to an impression-tray: Take a strip of thin sheet lead or tin and shape it to fit the rear floor and come around on the sides of the tray, flaring backward and standing as high as desired. Drill holes through the strip and tray, and sew them together. The plaster will thus be prevented from overflowing in the fauces. By simply cutting the threads the tray may be restored to its original form, and be ready for another like modification to meet any peculiar form.

Dr. B. F. Rosson suggests the following plan of taking impressions: The principle consists in obtaining an impression only of the parts on which the plate is to rest; this is done by using for the lower jaw a narrow impression-tray, and almost flat instead of

deeply concave, as they usually are. This may be bent so as to partake as nearly as possible the form of the ridge of the jaw. A sheet of softened wax is then put on the tray, and pressed on the jaw till a good impression is secured; then trim down the wax just to the size the plate is to be; now use this for the plaster impression-tray; a very small portion of plaster properly prepared will be sufficient to obtain a very perfect impression. The plaster should at no point be permitted to pass much beyond the proposed border of the plate; this is to prevent pressing and distending the soft tissues on both sides of the ridges; such distention usually draws the mucous membrane of the gum out of position. Immediately after the tray with the plaster is placed on the jaw, the tongue should be raised above the tray and kept there till the plaster has set.

The tray for the upper jaw should not extend much beyond the ridge all round, so that the same principle is observed as described for the lower.

Dr. L. E. Custer adopts the following method in taking an impression of a difficult upper partial case: With the spatula bent the required shape, carry plaster of Paris of proper consistence to the roof of the mouth, and spread it as far back as necessary, adding more plaster till even with the necks of the teeth, leaving the exposed surface rough. Then with modeling composition take an impression over the hardened plaster, to which the composition will adhere, thus securing the advantages of both materials—the plaster for the mucous membrane and the composition for the teeth.

SNOW AND SALT.—When you have no local anesthetic convenient, chop up a little ice, or take some snow, mix it with salt, put it in a thin napkin, adapt it to the gums where you want to operate, and after about two minutes' application the gum should be "frozen," and you should be able to extract with little or no pain. In hospital practice, where you want to save poor people pain, this simple application can be used anywhere on the body. I have opened abscesses, and even found it useful in hypersensitiveness of dentine. I constructed a little cup or bowl on the end of a dental instrument for the purpose of carrying the snow-salt and applying it to the gums, but it is easily applied in an ordinary mouth-napkin. If a pulp is exposed, close the cavity with cotton before applying the snow-salt.

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[There is sometimes danger of injuriously freezing the adjoining teeth or gums; and the drippings are very unpleasant to the mouth.—ED. ITEMS.]

PYORRHEA.*

C. N. Peirce, D.D.S., Philadelphia.

In writing, thinking or speaking of the subject "pyorrhea," it is of first importance to have it closely and definitely defined; without this limitation, there is no certainty that any two are dealing with the same pathological condition. Observation and interpretation then must enter largely into an intelligent comprehension of the subject, and in its discussion it must be borne in mind that we have different abnormal states, which are liable to be spoken of as having a common origin, because of the similarity in results. This necessarily leads to antagonisms and embarrassment. Calcic pericementitis may have its origin at the gingival borders, the tartar acting as a local and mechanical irritant with its train of concomitant evils, such as irritation, inflammation, formation of pus, and absorption of gum and alveolar process. This may be treated locally, and be reported as a case of pyorrhea cured, when the most that can be said of it is that it was the result of a local cause, and has been treated and cured by topical applications. To avoid such complications in diagnosis, let us first recognize the fact that we have three distinct abnormal conditions affecting the gums, pericemental or alveolo-cemental membrane, and alveolar process. The first is gum inflammation and destruction caused by a mechanical irritant,—the salivary calculus of which we have just spoken. Second, inflammation of the gingival borders without the presence of tartar,—Dr. Black's phagedenic gingivitis and pericementitis. The third is a pericemental irritation commencing at or near the apical extremity of the root, due to the presence of some morbid composite of the blood, exuded with the plasma and infiltrating the alveolo-cemental membrane and frequently deposited or precipitated on the root of the tooth near its apex. This latter I designate true pyorrhea alveolaris or hematogenic pericementitis. So intimately is it associated with some other local manifestation of a gouty diathesis, that I believe it to be but another local expression of that systemic condition. This assumption has been confirmed by the fact that the accumulation which is so frequently found on the roots of teeth near their apical extremity, by careful chemical analysis, has been proved to be composed of sodic urate, calcic urate, free uric-acid crystals, with some calcic phosphate and carbonate. Nor is this the only evi-

* We present a symposium on this subject from the *International*. The subject is so important and so thoroughly discussed by these nine champions, we owe no apology for the space occupied.—ED. ITEMS.

dence of the correctness of this theory; cases which had been treated for months and, indeed, years without more than modifying the progress of the disease, have, when the patient has been subjected to rigid constitutional treatment, such as restriction in meat diet to simple albuminous food, with such remedies administered as are usually beneficial in gout or a uric-acid diathesis, responded promptly, the inflammatory state with its concomitants, pus formation and process absorption has been arrested, and, if not too far progressed toward dislodgment, the teeth have become comparatively firm and free from pain.

I might in a few condensed propositions give conclusions which appear to me to be fully warranted:

1st. The inflammatory stage of true pyorrhea primarily begins in tissues on the side of the root near the apical extremity, and secondarily advances toward the gingival borders.

2d. The cause of this inflammation or pericementitis is the plasma exudation from the blood-vessels freighted with salts, which, in their deposition and crystallization on the cement of the root, exert the influence of foreign bodies and react as irritants.

3d. The salts in question, as disclosed by chemical analysis, are calcium and sodium urates, free uric acid, and traces of calcium phosphate.

4th. The chemical nature of these salts indicates a condition of the blood in which there is an excess of uratic salts and uric acid, due to either increased formation or imperfect elimination. The excess of these salts general pathologists regard as indicative of a faulty nutrition and the immediate cause of a series of local disturbances to which the term "gouty" has been applied, the nutritional disturbance being known as the uric acid diathesis.

5th. Results from constitutional, in connection with the usual local treatment in a number of well-authenticated cases of pyorrhea, have been so markedly satisfactory that we feel fully justified in these assumptions regarding the origin of the disease.

Dr. George S. Allen, New York.

My good friend Peirce has, in a measure, stirred up my combative disposition.

The hard and increasing work and study on pyorrhea is encouraging in results attained and to be attained in the treatment of this troublesome disease. It is but a short time since that the average practitioner declined to even attempt its treatment and advised his suffering patient to either have the offending member extracted at once or to suffer in silence, for he knew no means of alleviating the pain, much less of saving the tooth. The disease

was akin to old age, and, like old age, was not amenable to treatment, and was equally hopeless. The utter ignorance of the cause of the disease was too great to be easily overcome, and few dentists cared to waste either time or effort in the way of treatment. This happily is not now so; most of us are glad to be able to offer our patients some hope in the way of temporary, if not complete salvation, and almost always are able to alleviate pain and discomfort.

Teeth are lost in one of two ways,—either through a destruction of their substance by decay or of their foundation; that is to say, they loosen in their sockets and fall out, or become so troublesome that they must be taken out. With caries we have nothing to do.

The physical aspects or conditions found where the foundations of the teeth are destroyed vary much, but for our purpose it is not necessary to enter into a close analysis or comparison of them. Leaving out of question what may well be called a senile loosening and consequent loss of the organs—that which is solely a result of old age where the gums and alveolar process disappear, waste away by absorption, exposing the root more and more as time passes, till at last the socket disappears and the tooth is simply thrown off for want of support, a condition well understood and as hopeless for treatment as the age of the patient itself—we have a variety of other conditions looking toward the same result if neglected, but which offer a fair field for investigation, study and treatment, with the promise of hopeful ending.

The day is past when the educated dentist can dismiss a patient with the statement that his disease is hopeless, and that he will have to lose his teeth one by one as time goes on. For our purposes it would be a waste of time to go into any detail of the symptoms and conditions which mark the inception, progress and ending of this disease, my object being only to draw attention to one or two special points. First, let me say there is only one generic term I know of that will apply to all cases, the appropriateness of which cannot be questioned. The term is "luxation of the teeth." If to this generic term the two specific ones, pathogenic and traumatic, be added, we have a nomenclature that will fit all cases and conditions. For it is true, the presence of tartar in any of its varying forms, may not appear in the disease, and the same can be said of pus. Both are often found wanting. An inflammatory condition in either the acute or subacute form may or may not be present, but the work of destruction goes on just the same. Necrosis of the processes is only an adjunct at times, and so we can go through the list. And it is not so rare a thing to find a case in which tartar, pus, inflammation and necrosis are all absent, at least to all ocular evidence, and the disease still be present and progressive in its

nature. In our present state of knowledge it would be difficult to make strong assertions as to the role germs play as a cause. They, alas, seem to be omnipresent; but the influence they exert for evil we have no present means of determining. One or more of the conditions named may be present, and some are much more common than others. They each and all are important or unimportant at times. The fault we find with the classifications of Drs. Black and Peirce is that they do not recognize this fact.

Dr. Peirce's terms are but modifications of Dr. Black's, and by the introduction of the word "calcic" he recognizes the presence of tartar as the essential factor, the prominent vice to be sought for and eradicated, in combatting the trouble. Dr. Black's terms, "serumic" and "phagedenic," go further by recognizing other factors besides the blood-serum and saliva as the sources of the active agents we seek—the power behind the throne. It appears to me very necessary that we should bear all these facts in mind if we want to be able to correctly diagnose and treat pathogenic or traumatic luxation of the teeth.

There may be said to be two camps of theorists in reference to this somewhat vexed question,—those who hold to the belief of its constitutional nature and those who refer it to a local exciting cause, and each side is quite sure it is right. A basis or preconceived opinion in any direction is hard to overcome. We are all slaves of our prejudices and opinions. There is a German school which takes the ground that all the diseases of the teeth are caused by some constitutional vice, and as a consequence frown on all local treatment, and take their pills, powders, and liquid medicines philosophically and in good faith. Now, I am one of those whose faith in the constitutional vice theory is very limited, and I feel quite certain that for all practical purposes the disease has a local origin, and that effective treatment must be based on this belief.

Therefore I look on the paper of our able and scholarly colleague, Dr. Peirce, as calculated to mislead and beguile us, rather than to clear our vision and help us in a practical way. Yet no one more highly appreciates the great value of that paper, or more readily acknowledges the sincerity of purpose which pervades it than I do.

First, let me say, I find but one new thought in it; or rather, I should say, there is in it one old thought with a new prop or support. Briefly stated, it is this: pyorrhea is a constitutional disease, and indicates a gouty diathesis, because a chemical examination of the deposits on the teeth shows the presence of free uric acid. The learned doctor, I think, has given us too broad a generalization from a limited amount of support.

* * * * *

Free uric acid in the system does not necessarily prove a person to be either gouty or rheumatic. It is undoubtedly a symptom, and a strong one, but not conclusive. Free uric acid is frequently found in the blood-serum of persons who have neither a rheumatic nor a gouty tendency, and in these cases rather points to a condition of the system where destructive metabolism is in the ascendancy. Waste is going on more rapidly than repair. Overwork, nervous or physical exhaustion are, as a rule, associated with this uric-acid condition of the system, so much so that it is considered one of the most positive diagnostic symptoms of a run-down or enfeebled condition. A changed condition of life—one of rest, recreation, and enjoyment, followed by a building up of the system—will be followed almost immediately by the disappearance of the excess of waste products, including the uric acid and urates.

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If Dr. Peirce is right, the presence or absence of pyorrhea would be a strong diagnostic symptom, or the contrary, of the gouty condition. But this is not true; at least physicians do not so consider it. In fact, there seems to be no recognizable connection between the two. For years I have been in the habit of asking patients coming for treatment if they were either gouty or rheumatic, and the answers, grouped together, have had only a negative value. I have been exceedingly anxious to find some constitutional vice that would bear the brunt of the trouble; and as it was in the air, as one might say, that gout and rheumatism were the suspected causes, I have seldom, if ever, neglected an opportunity of obtaining reliable working data to help in forming a correct diagnosis. I am sorry to have to report no satisfactory conclusions. A strong objection to the whole theory lies in the fact that, whereas depositions of tartar are so common as to be almost a rule in middle life and old age, I am thankful to say gout and rheumatism do not bear a disproportion to the other ailments humanity labors with.

But let us, for the sake of argument, accept the conclusions the learned author presents, and see where they land us. Gout and rheumatism, especially the former; or, to state the case in another way, all manifestations of either disease are followed by deposits of lime salts in the joints or other positions, and are deemed to be the most intractable of all diseases to treat. The deposit once formed, refuses to be dislodged. It cannot be reached. The blood-serum can carry fresh supplies of the objectionable material, but it cannot, however changed in character, redissolve it. The same may be said of urinary calculi; and the poor mortal who has

once passed one of these latter, no larger than a small pea, has had most painful evidence of the truth of this statement.

Is the uric-acid state of the system the cause of the inflammation, pain, and distress, or is it the little lime nodule that happens to be situated where it is decidedly not wanted? How formed or whence came that nodule has nothing to do with the train of distressing conditions that it produces. It is a cause sufficient to itself for them all. The vice in the system did form the nodule, but there its evil work ceased; the nodule takes up the work where the vice leaves it. As to these results, neither physician nor patient cares whether this nodule is composed of calcium phosphates, carbonates, or urates. They only want to get rid of it, and they work and labor only with that object in view, and they both know that when that is attained peace, comfort, and health return.

Now, I hold that the chemical constitution of this deposit has nothing to do with the train of evil results that follow its formation.

These reflections lead to one inevitable result. For all practical purposes, the constitutional-diathesis theory must be abandoned where treatment is to be adopted. Back of the local excitants and other factors of like nature that are the immediate cause of the disease, the wise man will seek means of prevention. But prevention and cure are widely different, and call for as widely different means to attain the end sought. Constitutional faults or vices do indeed lead to deposits of tartar, but when the tartar has been once deposited on the necks or roots of the teeth it starts in business on its own account, and on lines and in ways that its constitutional father never thought of, and with results in the way of manufactured products that clearly indicate its ability to take care of itself. So by all means let the good work of the constitutional-diathesis theory workers be encouraged. The more they can do for us in the way of prevention the better; but we must not let them throw dust in our eyes, and lead us astray with the delusive hope that we can mend a broken head if we can only catch the boy who threw the stone and send him to the nearest Sunday-school.

I hold that the present state of our knowledge does not permit of such a thing as a radical cure in any but a few exceptional cases, but I fully believe that much can be done, especially in the earlier stages of the disease, to ward off its evil effects, and even effect a permanent change for the better.

If my view be correct, these lesions and pathological conditions have their origin in some mechanical or chemical irritant obtaining a lodgment under the free margin of the gums. To one holding this opinion it is not necessary either to underrate or deny the indirect influences that systemic cachexies have, either in

aggravating or inviting them. Good judgment must be used in weighing the value and importance of each.

Looking at the condition of the teeth and adjacent soft tissues from a clinical standpoint, we find them much as follows:

1st. As a rule, if the gingival borders have a healthy normal appearance and the teeth are not shaky, we may be assured that, though the disease has obtained a lodgment, it has attained no great headway.

2d. Any departure from this condition shows progress in the disease, and that, too, just in proportion to the departure from the normal state. Bring back the parts to the healthy condition; first, by removing the direct cause, and, secondly, by following the removal by local health-inducing treatment of the affected parts.

"Let it be recalled that in this form of the disease the morbid process begins at the root, and very frequently, if not usually, in the vicinity of the apical extremity."

This statement seems to be erroneous, and contrary to ordinary observed conditions. So far as my observation goes, the deposit is first formed just under the free margins of the gums, and in rare cases only at the apical ends of the roots, and I have yet to see a case where the so-called pocket did not point the way to reach it. Dr. Black, whose authority to speak is unquestioned, in the "*American System of Dentistry*," classifies pyorrhea, without question or exception, as a disease having its origin at the necks of the teeth; and if any other authority of note, excepting Dr. Peirce, does otherwise I do not know it.

Now, a word as to how the deposit, where we have to deal with serumic tartar, is formed, and its nature. It is not easy to go back of the theory that the lime salts composing the deposit have been carried to the parts through the medium of the blood-serum, but it is no slight problem to indicate how it has been accomplished. Possibly the principle of diffusion may account for it, but it cannot be so stated positively. In the large majority of cases the deposit in the early stages will be found just under the free margin of the gums and above the periodontal membrane, and this would seem to show that it could not have been directly carried to the parts by the blood current. In some way the plasma, weighted with the salts, is exuded or pressed through the membranes, and attaches itself to the necks of the teeth. The formation of tartar deposits is a gradual one, and as it goes on it is brought under the influence of the saliva and other fluids in the mouth; to what extent these may modify or change its nature we can hardly guess. But the probabilities are that they do affect the characteristics, physical and chemical, of the deposit to a

considerable degree, and there is little doubt that the débris of the mouth also forms a part of the deposit. Microscopical examinations indicate this very strongly. I am not in a position to question the judgment of Dr. Peirce where he says, "As the current of the lymph-stream is directed for the most part toward the cement, through its borders of periphery into the lacuna and canaliculi, and finally in the reverse direction, it is not difficult to see why the deposit should take place on the surface of the cement as well as in the meshes of the alveolo-cemental membrane." But I confess I do not quite understand what Dr. Peirce means by his reference to the lymph-stream; but it seems to me proof that it is so formed and deposited is wanting, other than it may be in a few exceptional cases. The deposit as found is amorphous; no crystals ever go to form any part of it, and it is not constant, so far as we know, either in its chemical or physical characteristics.

The ways of removing deposits on the teeth are at our command,—the mechanical and the chemical. As to the first, it is mostly of skill, controlled by the educated eye and touch. Much force is seldom required, and never to the extent of injuring the soft tissues or the alveolar processes. The chemical agent I mostly rely on is sulfuric acid, using a ten per cent solution of the pure manufacture.

One point I would lay special stress on, in closing, is the necessity where teeth have become loosened in their sockets in some way to give them support. The constant motion of a shaky tooth of itself rapidly destroys what foundation is left, and all work is useless that does not contemplate holding the teeth firmly in place as of the first importance.

Dr. R. Ottolengui, New York.

It is no new idea that pyorrhea is attributable to a systemic rather than to a local cause. More than ten years ago, Dr. William H. Atkinson, when treating these cases, prescribed constitutional remedies, cinchonidia being one. The new thought in the paper by Professor Peirce is that uric acid is a primary cause in the production of the worst form of this disease. To Dr. Peirce we must give full credit for his published work, and for the series of investigations and experiments that have led up to it. If I mention therefore, that this idea is not new to me, it is not to lessen the force of what Professor Peirce has given us, but rather to show that what opinions I may express may have more value than if it were true that it has only been since a few weeks ago that I have given this a thought.

I think it is fully five years ago since Dr. M. L. Rhein first told

me that, in his opinion, there was a close relationship between the most aggravated (and I may say aggravating) form of this disease and the gouty diathesis. From that time I have been seeking closely for histories which connect this disease with the gouty complaints. I also know that during this time it has been a frequent habit of Dr. Rhein to have examinations of urine made where the disease was conspicuous. I regret to say that I cannot give any results that he has deduced, nor would it be proper for me to anticipate what he has the right to publish as his own. But I would suggest that, as time enough will elapse after receiving this and before your meeting, Dr. Rhein be invited to give you his views on this subject,

I accepted Dr. Rhein's view as probably correct, but have been unable to verify it. I have questioned over three hundred persons afflicted with virulent pyorrheal conditions, and the number who have admitted that they had suffered from any form of disease attributable to gouty diathesis, was not at all commensurate with the number we would expect to find were this the chief explanation. However, it is quite possible that even in those cases in which there was no known history of rheumatic tendency, uric acid may have been the most important factor in causing the local disease symptoms about the teeth. I am inclined to view the theory as probable, but it is scarcely time for its free adoption. There is too great a tendency among dentists to adopt every new idea, and the result is many hastily accepted must eventually be discarded. I think Professor Peirce is working in the right direction. He has the ability to pursue the subject to a satisfactory end, but I believe it will be wise to wait awhile before announcing to our patients that at last we know all about it.

Pyorrhea alveolaris is a bad name. Since there is no other part of the body which is afflicted with pyorrhea, it is clear that the explanatory word alveolaris is unnecessary. Therefore I would favor the adoption of the name pyorrhea as a designation for the class. We recognize that there is more than one form of the disease and I am not sure that there may not be more than two. I do not favor the names proposed by Dr. Black, nor do I like those suggested by Professor Peirce, but I cannot offer any better. Perhaps it might do to call the worst form serumal pyorrhea and the other calcic. But I do not really advocate this, because it is still to be decided what part the deposits play in the disease, there being no doubt in my mind that it may exist in its most discouraging form, without deposits either from the blood or from the saliva.

From the realm of my experience, I will endeavor to describe some distinct forms of the disease as I have seen them, together with concomitant peculiarities.

We frequently hear of men who effect radical cures of pyorrhea. I doubt these men. I have listened over and over to their histories of such cases, and I have read reports, but almost invariably I have been impressed that these men have been incompetent diagnosticians. To them, any ooze of pus from the pocket around the neck of a tooth is a true case. Why not? Is it not pyorrhea alveolaris?—pus from the alveolus? But, however poor they may be as diagnosticians, we cannot deny the honesty of their reports. Therefore we must recognize that there is a pus-generating disease, which is curable.

I should not include this in the class which I would denominate pyorrhea, or if I did I think I should call it gingival pyorrhea, for first, it is a disease confined strictly to the gingivæ, and secondly, it is not caused by calcic deposits, though the deposits play an important part, as I shall describe.

Gingival pyorrhea (to use the term as a temporary designation, for the purposes of this paper) is really a gingivitis which has been neglected till a suppurative stage is reached. This suppuration may result in two ways, or may be caused by both together. The first appearance is a localized, but well-marked inflammation, confined to the gingival pedicle which lies between the teeth. For a long period it will extend no farther, and there will present a well-defined line, which appears to separate the inflamed from the normal tissue. This line will be just below one drawn across the highest point of the gingival arches. If the patient notices the disturbance at all, the report will be: "My teeth bleed when I clean them." In this stage the disease is not difficult to control. Nightly applications of glycerole of tannin will accomplish much. In time the inflamed territory expands, and the disease spreads along the arch of the gingiva till the whole of the margin of the gum is involved. Then the gums appear turgid and swollen. They are also rough, and loosely bind the teeth. A sort of pocket is formed and deposits are invited. These in turn add to the trouble till we find them exerting an irritating influence which ends in a purulent condition. Or, where deposits are not made, the gradual degeneration of the vitality of the part will result in pus. In these cases pus may be abundant, but the pocket will not be deep, and the pericementum is not at all involved. Of this I am positive. When the pericementum is involved, then I would say that from gingival pyorrhea we have supervening the condition which I have denominated salivary pyorrhea. I do not mean that this second form always originates in a gingivitis, but where a gingivitis is present we have a fruitful soil for the grafting of the more dangerous malady.

The salivary pyorrhea, then, is where salivary calculus is found about the necks of the teeth, with pockets extending up and encroaching on the area originally occupied by the alveolar bone, and from these pockets we expect pus. This condition I would include among those possibly attributable to uric acid, though the next is more probably so.

Where the disease is solely serumal pyorrhea, we would argue that salivary calculus was not necessarily present at the initiatory period. The deposit has been made at or near the foraminal end of the tooth, and the subsequent pocket has been formed by the burrowing of the pus which has accumulated as a result of irritation. I am inclined to believe that in these cases the serumal deposit is not a mere incident of the disease, but that it is the primary lesion. If not, then we must imagine that the disease exists first; that we have pus accumulating at the end of the tooth and burrowing its way outward till a pocket has been formed, and that the deposits occur afterward. Now, who can truthfully report such a condition? We have seen pus discharges where no deposits exist, but who can assert that deposits of one kind or the other have not existed prior to the examination made by himself? Personally I have never noted such a condition, except where, instead of a well-defined pocket there has been rather a well-marked separation of the soft tissues from the tooth itself, with a dissolution of the bone; and invariably I have observed that the pockets do not reach the end of the root, except in the final stages, when extraction becomes almost an immediate necessity.

Serumal pyorrhea, in my opinion, begins when the deposit is made at the end of the root.

But we have complex conditions. The serumal pyorrhea may become engrafted on the salivary. That is, the saliva may deposit calculi first, and in an advanced stage of that disease we may have serumal deposits occurring. Contrarily, the serumal deposits may present first, and after a pocket has been made it is easy to imagine the salivary deposits occurring. Whichever way the final condition may come about, the result is the same—a combination of both diseases. That uric acid is an operating cause here is more probable than with any of the other conditions.

By what name shall we designate that other dreadful form, where no deposits are present? Once more maintaining my point that the pocket begins at the neck of the tooth and increases toward the end of the root, I will ask you to consider the following explanation of the disease: Any condition of health which will deplete the system and cause anemia will superinduce a condition about the teeth favorable to the advancement of this form of pyor-

rhea. As a local degenerator, I would point to excessive smoking. The constant high temperature may be said to cook the soft tissues to a point where their vital resistance is materially lessened. There is a waste of tissue in all parts of the body because of use. This waste is restored by vital processes of reorganization, and where the vitality is sapped we can easily imagine a general depletion ensuing, with lack of reparative energy. The soft tissues, and also the bone about the teeth slowly waste. The gums shrink. They do not recede at first, but they shrivel, their bony support having also melted away. Pus follows. In this condition recession begins. This recession is more marked about the superior molars, and on the palatal side. This is caused by the lack of resistance offered to the action of the tongue pushing the food between the teeth in mastication. The force thus exerted wears away the soft tissues at these points. We may or we may not have pus, and its presence is possibly dependent on bacterial infection. It is well known that bacteria may be present and do no harm till the vital resistance is lessened, or the temperature increased to a point conducive to their propagation. The first condition we would get in either sex from any constitutional ailment resulting in anemia, and we might have both were the smoking habit excessively indulged in. What part the nicotine would play as a germicide, and how it might act as a virulent poison are points worthy of study. These cases, as unpromising as they appear, are exactly those which often result in what seem to be marvelous cures. If the general health of the individual is restored, either by medical aid or by change of scene and habit, the local disturbance not infrequently will disappear, and though the gums and much of the bone have been lost the teeth become firm again.

We are told that necrosis is not an accompanying symptom of pyorrhea, while it has been long claimed that it is. It seems to me this is more imaginary than real. I do not doubt that technically it is right, and that true necrosis is not common in this disease. But there is no doubt a destruction of the alveolus, and whether we call it necrosis, caries, dissolution, or absorption is of small consequence. But it is certainly not the absorption of bone which follows the extraction of the teeth. I have made sections of bone, and where but one tooth has been extracted, instead of any absorption of the bone, I have found rather an obliteration of the tooth-socket by a deposition of new bone, which is more cancellous than the normal process. Absorption of the alveolus is commonly found only where several teeth have been taken from one locality, and is subsequent to the healing process, or, if coincident with it, the destruction of bone has been great enough to

allow a collapse of the remaining walls, so that, when healed, the ridge is shortened. But in pyorrhea, we have a distinct destruction of the bone, which, if asked to denominate, I should call caries, caused by the presence of pus and pressure.

This brings me to a proposition which I have not seen considered, and which I offer for your observation and study: Whence the pus which accompanies this disease? Is it from the pericementum, or is it from a true pus-generating tissue which replaces the lost alveolus? In many instances, I have been tempted to believe that it is the latter; that the pus exudes from the soft tissues overlying the root, and not from the pericementum. If this is true, then we cannot use the term pericementitis. I do not mean that pus never comes from the pericementum, but that in the worst cases it comes chiefly from an opposite direction.

(*To be continued.*)

BRIDGE-WORK.

Dr. E. Parmly Brown, New York.

Fifty years from now all dentists will make bridge-work. Some may then make bridge-work with so-called self-cleansing spaces, not resting solidly on the gum, but they will not let you know or hear of it if they can help it. Resting solidly on the gum is the correct principle, true to nature in every respect, in touch, in appearance and in form. This is my conclusion after many years of experimenting. Dr. Atkinson held the same views before he died. Dr. Hamlet's cases were illustrated in Dr. Evans' book five years ago. Recently he came to me and said he wanted me to fix a bridge for him that the natural pier tooth had failed in. Dr. Hamlet, when the bridge was removed, in what condition did you find the gum?

Dr. Hamlet. I found the gum in a healthy condition, and I also found that the surface of the bridge, next to the gum, which Dr. Brown makes of platino-iridium, was perfectly clean and polished, not a particle of food being under it in two years.

Dr. Brown. Dr. Hamlet has a bridge which I have shown at several clinics. This first upper right bicuspid was anchored nearly eight years ago to a gold filling in the second bicuspid only, and remains unbroken. The gum is healthy. He has a jaw which gives a big strain when he eats. Dr. Hamlet showed a case some six years ago at the First District Society, which he tells me he saw recently. He tells me that bridge, without mutilation of the

teeth, is in there to-day. Speaking of mutilation, there are different kinds of mutilation. This case, which Dr. Evans illustrated five years ago in his book, has been in the mouth five and a half years,—five porcelain bridges, all anchored in living teeth, with gold fillings. Two months ago I took this gentleman down to Dr. Evans. He saw him when he illustrated his book. The patient has gained thirty-three pounds. Every bridge is there; no filling has loosened; no atom of porcelain has broken. The mouth was clean and sweet; only one pulp has died in his mouth, and I fixed it in half an hour. Pulp is dying all the time. They die when you fill teeth. That tooth is not as good as when the pulp was alive.

I made bridges for a lady at a clinic. The lost bridges disappeared in Chicago. There were four bridges in a lady's mouth, all anchored in living teeth,—two lateral and three bicuspid on each side, capped back on the living molars with gold crowns. These are all attached to gold fillings. I have seen this lady within three months. Not one filling is out, not one of those bridges is loose, not one has broken. You can move them, and feel them move, according to the movements of the natural teeth in their sockets, of course. This porcelain is weak, and it is a very unfavorable case. The gums are healthy, as you saw them four years ago when shown at clinic. I want to say a word about fillings anchored to bridges. Fillings are anchoring bridges in even the hardest masticating mouths. These cases illustrate that perfectly.

In anchoring these bridges in gold fillings, you must make the gold very solid. I have with me an instrument which I devised a few years ago, and which I have now perfected. It is a tooth-bracer, made of a pound of tin. It is placed against the tooth and the shock of the mallet is obviated. I can place it behind any tooth, and when I have it firmly in position, and am using a delicate instrument on the other side of the tooth, I can guide the instrument more truly. This form is more suitable than any other. You can suspend it from the ceiling with a counter-weight, so it will not drop; or your assistant can hold it, or the patient, or the dentist can hold it himself. It is an important factor in relation to this bridge-work, though it should be used for all operating where a blow is used on the teeth.

I would not think of telling any one how I would attach a bridge till I saw the case. In bridge-work, nine out of ten are not done well, because you have not the system. There was the case illustrated, of the gentleman who had traveled all over the country to get bridges to suit him, and who was finally recommended to me. Dr. B. Holly Smith, who is connected with the college in Baltimore, said to him, "If you let Brown put those teeth in with fillings, they

will all be out in a year." He met Dr. Smith in Baltimore some time after, and told him of the work I had done. The gentleman said he was satisfied to have his mouth bridged with porcelain only anchored in fillings, and five years have proved his judgement good.

Do not criticise things unless you have studied them. Some bridges should be put in with fillings, both gold and amalgam, some on capped roots, and some on gold crowns. Nine out of ten of the bridges that I am putting in are single teeth in the anterior part of the mouth. I advocate permanently attached bridges in nine out of ten of the bridge cases that come to my practice. In the tenth case a removable bridge might be better, for reasons which are obvious. The ideal bridge cannot be any one thing in particular, it must be ideal for the case. That bridge in Dr. Hamlet's mouth is ideal for his case. In others you might require a gold crown in the back part of the mouth to have it ideal. Some might call for a removable bridge to be ideal.

Cosmos.

LOOSENED TEETH.

Dr. S. E. Davenport, New York.

Dentists are occasionally called on to treat mouths in which, while there is no particular tendency toward pyorrhea, some teeth, usually the lower incisors, will be found very loose, the bony process much absorbed, and the gum thickened and spongy, with perhaps a slight exudation of pus.

This condition in such mouths is usually of local origin, caused by the encroachment of salivary calculus, the other teeth in the mouth being ordinarily in good condition and of unquestioned longevity, and it is sad to be obliged to advise their extraction.

I will confess that on several occasions I have seriously considered the advisability of in some way fastening such teeth securely to the firm ones, for the sake of saving the patient the annoyance of a plate, though recognizing objections to such a plan.

On one occasion the temptation to attempt the retention of such teeth was increased by the pleadings of the patient, a gentleman about seventy years of age, in good health and of good physique, who had more than the usual horror of artificial teeth, assuring me that he would bear any fatigue and put up with any discomfort if I would save his natural teeth.

The teeth had as usual elongated considerably, and when the jaws were closed, the four inferior incisors would sometimes shut

inside and sometimes outside the upper teeth, though the roots were long and still had quite an attachment to the gum.

The first step was to grind down the elongated teeth with corundum stones till they would clear the upper teeth when closed. This made the teeth very broad at the top, and enabled me to cut a rather deep longitudinal groove in the cutting edges of not only the loose incisors, but also the firm cuspids on each side, into which groove a small twenty-karat gold wire was fitted, filling about one-half the caliber of the groove.

At the next sitting, the rubber-dam being first adjusted, the gold wire was secured to its position in the groove with oxiphosphate, which, when fully hard, was cut away from two teeth at a time and replaced by semi-cohesive gold, malleted in, each tooth being held as firmly as possible with the thumb and fingers of the left hand while being worked on. It was, of course, difficult to pack the gold as solidly around the wire in the loose tooth as in the two cuspids, but by looping the strips of gold over the wire from one side of the groove to the other, a good adaptation was obtained, the fifteen per cent platinized gold being used for the surface to give the greatest possible resistance to the forces of mastication.

The operation was successful by the teeth being firmly held and made perfectly comfortable for the patient, who was instructed to use a small quill tooth-pick between the teeth after each meal, in addition to the usual thorough rinsing, so that the proximate surfaces might be kept clean.

At a subsequent sitting, the teeth were sealed and the gums treated, and within two weeks the discharge of pus had ceased, and the gums took on a healthy color and appearance.

This operation was performed in June, 1890, and was satisfactory in its results for a year, when the gold around the wire in two of the incisors loosened. After new gold had been packed in those two teeth, I felt obliged to admit that the teeth could not be kept for any great length of time unless some additional protection could be given, as the strain from incising and masticating was too great for the strength which could be obtained.

An impression was accordingly taken, and on the dies obtained a cap of pure gold, No. 30, was swaged to fit the upper two-thirds of the lingual surfaces of the six teeth, and extending over the tops of the teeth to a point, one-fourth of the distance down the labial surface.

This cap being carefully fitted, was cemented to place, in June, 1891, with oxiphosphate, and the edges of the cap burnished to the teeth wherever possible.

This pure gold cap has become loose, I think, twice since it was first put on, but it is easily readjusted and has in every way fulfilled my expectations, for the teeth are preserved, and, I think, can be indefinitely.

Such a contrivance would be unsightly in a lady's mouth, but this gentleman, having a heavy moustache and beard, exhibits the golden line only when the joke is a particularly good one.

International.

TO PREVENT A "SLIP" IN DENTAL OPERATIONS.

1st. Almost always the rubber-dam should be applied before operations are begun. There are exceptions where the difficulty of its application and the pressure of clamps on the gum more than balance the benefits to be derived from its use, when it should be discarded.

2d. It is essential that the head of the patient be steadily supported. He will be less likely to move his head, voluntarily or involuntarily, if his position be made fairly easy and comfortable.

3d. The position and height of the chair should be adjusted to the easiest and freest movement on the part of the operator. The "arm rest" is a necessary adjunct to the chair, that one forearm and the hand may be firmly supported while steadying the head or lower jaw of the patient. With these precautions, the possibilities of a "slip" are greatly reduced.

4th. For the engine, a poor hand-piece, one which fails to grasp and hold the bit firmly, should not be tolerated.

5th. All cutting instruments should be sharp—they can be used more accurately, delicately and speedily.

6th. The operator, while he may work rapidly, should never be in haste, but rather deliberate; making sure, especially, that each instrument he selects is adapted to the work in hand. Of all things he should avoid the habit of jerkiness or fussiness in the handling of tools.

Dr. G. Newkirk, in Review.

COMBINING RUBBER FILINGS WITH FRESH RUBBER.

Dr. W. S. Simonton, West Virginia.

To many it may be difficult to imagine that filings and scrap from finishing plates can be of any value. After the rough and dirty portions of the plates are scraped or filed off, save the remainder, and in packing a thick heavy plate, first dip the rubber in warm water to soften, then roll it in the filings, and pack as

usual; vulcanize carefully, and I will insure a good plate, well vulcanized, strong and tough, and not porous. Rubber treated thus before packing vulcanizes in less time.

In heavy plates it is well, of course, to vulcanize carefully; but with ordinary care the plate will not become porous. I use this method in all plates, even when required to be made thin, as it vulcanizes five or ten minutes quicker, and I think produces better results. Formerly, in some very thick portions of plates, especially those that require much building on the sides, it seemed almost impossible to prevent the thick heavy portions from becoming porous; all brands of rubber are alike in this respect, but since using this method I have not had one bad result or one porous plate. Porous plates have always been a source of trouble and much extra work. But this method of rolling each piece of rubber in the filings from finished plates, I think, will be found to always prevent any trouble from this source. Try it, and if you have no filings saved and a heavy plate to make, from an old plate make sufficient to pack the one on hand.

International.

WATCH OR CLOCK OIL.—Take of prime salad or table oil, in a bottle, say, one pint. Lead, in sheet form, one-sixteenth of an inch thick, or less, from which cut strips a little shorter than the bottle, to form a bundle about as large as the bottle's neck. Place the strips in the bottle, cork lightly, and hang in a window, giving it the greatest amount of light and sunshine possible. In a few days the oil will become clouded; and later a grayish substance will settle, showing a separation of oil and vegetable matter. The supernatant liquid will remain clear and free from odor. For lathe, dental engine and hand-piece, it is a lubricant *par excellence*.

A. C. Hewett.

A certain dentist made many futile efforts to collect a bill which a customer owed him. After sending and calling again and again, with no result, he finally met the man on the street one day, and stopped him, saying, "I don't intend to send you any more bills, and I don't intend to sue you. Every time you cut off a piece of beefsteak and pass it to your wife, I want you to remember that she is not chewing that beef with her teeth, nor with your teeth, but with my teeth."

In two or three days he received a check. The motion of those teeth in his wife's mouth was too much for the obdurate debtor.

Exchange.

ANSWERS TO QUESTIONS CONCERNING ANESTHETICS
AND OBTUNDENTS.*A. C. Hewett, M.D., Chicago, Ill.*

Since the adjournment of the Columbian Dental Congress, I have received so many letters of inquiry of which the following questions are, in substance, given, concerning cocain pigment, etc., that I find it practically impossible to give personal answers. I ask my esteemed correspondents to accept answers here given as if to them personally addressed, and, I may add, that what I have given below, I have proven. During the week in which I have written this article I have twice operated for "imprisoned third molars." Cocain pigment and chloroform, as advised, rendered one operation "Perfectly without pain, but I knew all the while," the other attended with only slight pain. "But not much—no shock." Very few teeth should be extracted. Many roots should be saved and crowned. It is, however, necessary sometimes to remove teeth and roots, as it is sometimes needful to amputate limbs; both, when needed, should be done painlessly by wise, skilled dentists and surgeons.

Q. 1. I understand you advocate painless dentistry. Is it possible and practicable?

A. Absolute painlessness in dental operations is scarcely attainable. Relative painlessness is possible, desirable, practical, profitable to the operator, and appreciated by the patient.

Q. 2. If yes, 1st, What agents do you employ? 2d, What is the method you advise?

A. Avoid thrusting a searcher on an exposed pulp or sensitive dentine without an obtundent previously applied. Cocain and adjuvants for the superficial soft tissues, and chloroform to obtund dental fibrils, and those of deeper structures.

To prepare for a careful examination for pulp exposure and sensitive dentine, a wash, prepared as follows, is reliable:

COMPOUND LISTERIN OBTUNDENT.

R.—Sol. hyd. cocain (4 per cent).....	fl. oz. iij.
Glycerin	fl. 3 ij.
Listerin ad.....	fl. oz. iv. M.

Apply to gums and necks of teeth to remove all débris and mucus, with tooth-brush or with brush or sponge applicator; immediately wipe out deep cavities with absorbent cotton, and moisten the cavities with "com. cocain pigment."

To prepare gingivæ and peridentium, to tolerate clamps, separators, gilling twine, scalers and pyorrheal blades, cleanse the

neck of teeth and the gums with the compound listerin obtundent, or with pyrozone, 3 per cent or less, then dry and apply cocain pigment, working it well along the necks of teeth into pockets and into gum borders; to operate (surgically) in and about the oral cavity, and to extract teeth and roots painlessly, the patient remaining conscious and retaining voluntary motion, cleanse the parts as directed, dry them, and apply the pigment (for extracting), and while waiting for it to anesthetize the parts, administer chloroform.

To drill, bur or grind sensitive dentine, open pulp chambers, amputate or extract live pulps painlessly, proceed precisely as directed above for extracting and operating surgically.

Painless extraction of teeth and oral surgery by local anesthesia is possible and practicable by hypodermic injection of cocain. The following formula gives a hypodermic mixture, safe and effective, from the use of which, so far, no injurious or untoward results have supervened. Painless amputation of the finger, painless excision of a portion of a rib, and numerous other operations of minor surgery, unattended by pain, attest its value:

COMPOUND STROPHANTHIN HYPODERMICA.

R.—Sulf. atropin.....	gr. 1-2.
Strophanthin.....	gr. 1-5.
Acid carbolic (95 per cent).....	grs. v.
Hydrochlor. cocain.....	grs. xx.
Aq. dist.....	q. s. fl. oz. i.

M. Sig.—Four to six drops, hypodermically, for local anesthesia.

Q. Is there any soreness or sloughing after the use of the cocain pigment?

A. None.

Q. Is any special brand of cocain preferred?

A. If by "brand" is meant manufacture, I know of none especially to be preferred. No "brand" should be trusted unless the drug is in clean prisms, of the smaller rhombic system—crystals free from powder or dust.

Q. Is there nausea in the use of the pigment?

A. None.

Q. Is there any danger in using the pigment on extremely nervous persons, or those suffering from heart trouble?

A. Not the least. Care should be taken that none of the pigment reaches the stomach.

Q. Do you obtund sensitive dentine with the pigment by applying it in contact?

A. With but varied results and partial success. If the dentine is cleansed and dessicated, the pigment applied and evaporated by a blast of hot air, good results follow, especially if the soft tissues surrounding the tooth have been treated with the pigment.

Q. Is the pigment as effective as the 4 per cent of cocain injected?

A. I think not; but there is great danger in hypodermic injection of any per cent solution of cocain unguarded by some escharotic or coagulant. An injection will reach nerve fibrilla more quickly than any topical application.

Q. Is there any care required to prevent the deterioration of the pigment?

A. None. The last drop is as good as the first.

Q. Does the pigment act on abscessed teeth?

A. By its skilful use abscessed teeth and roots can be painlessly removed. Of course congestive tissues absorb less rapidly than those in a normal condition, hence in these cases the great value of chloroform with the pigment as an obtundent.

Q. Is there not danger from shock in operations during partial anesthesia by the chloroform and the pigment, as you advise?

A. Not the slightest from shock caused by extraction, burring, or cutting, consequent on the partial anesthesia; but there is danger from shock in giving chloroform, ether or nitrous oxid, if avalanched on the peripheral nerves; and there is danger of shock in operations without anesthesia, partial or general.

It perhaps is as well here as elsewhere to enlarge on this answer. I am aware that this answer is in flat contradiction to the teaching of scientists of Europe and America, and opposed to the consensus of opinion of experts (?) on this subject; nevertheless I modestly but unwaveringly maintain its correctness.

I assert that the first effect perceivable of an anesthetic given, as I advise, so gradually as not to irritate the nerves of the nose, throat and lungs, is on the ultimate fibrils of the sensory nerves. Any educated person can verify this by a trial on himself. Long before the brain becomes clouded, distinct sensations can be noticed in the extremities, especially at finger-tips and toe-ends, and long before consciousness and volition are held in abeyance by any true anesthetic, capacity to suffer pain is abridged. If this be demonstrably true, and I reassert it, then what logic can support the proposition that partial anesthesia (insensibility) augments the consequence of pain-shock? Every tyro in anesthetics knows that inhalations of chloroform, ether, or nitrous oxid will suspend for the time the "aching" of the felon, carbuncle, or phlegmon, and mitigate the fiercer anguish of local neuralgias, and angina pectoris even. What senseless sophistry then to argue that an obtunding of the fibrils through which the knife passes increases their ability to alarm the brain and depress ganglionic force. To my mind the fact is, when deaths occur, as they have too often in the earlier

stage of operations, shock from the anesthetic does what the sand bag in the hand of a footpad accomplishes, and often more speedily. The shock is from the chloroform and not the lancet, bistoury, or catling. It is with some pride and a great degree of satisfaction that in the earlier use of chloroform and later cocain and chloroform, for more than twenty-five years, not a single accident has marred my admiration and faith in the safety and advisability of anesthetics in dental as well as surgical practice; but I wish to emphasize the caution here given, that shock must be avoided in giving the anesthetic. If my way is not followed, then some other way should be chosen equally gradual, and that will admit a large amount of air with the vaporized drug. I will not be responsible if my directions and caution are not heeded.

Q. Is the pigment safe as a hypodermic?

A. Of its efficiency and safety, I have not a doubt, but I advise in preference the compound strophanthin hypodermica. As a hypodermic, it is more readily absorbed by the surrounding tissues, has been proven safe and forceful, and is less expensive.

Q. What care should be used, and what dangers attend hypodermic injections of cocain?

A. 1st. Never thrust the needle into or through a blood-vessel of any size. Thrombosis or embolism would be the least of the sequela likely to supervene.

2d. Never pierce the trunk of a nerve of any size sufficient to be transfixated or severed by the needle. Glosso-pharyngeal, lingual, or facial paralysis is liable to follow, all of which have come under my notice, subsequent on operations by careless dentists.

3d. Under no circumstances throw a solution of cocain of any strength among cellular tissues, unless combined with coagulants, or escharotics of sufficient strength to circumscribe and localize the injection, and bar it from the systemic circulation.

Q. Is there not danger of the patient and operator becoming victims of using chloroform and cocain as a "habit?"

A. To the patient not the slightest; cocain uncombined, is bitter to the taste and not fascinating; combined as advised by me, its pungency and viscidness render it anything but agreeable to taste or in effect.

To the dentist of to-day, with glowing records of experiments before his eyes, its toxic dangers stake-lighted, bell-buoyed, and fog-horned, if there is danger to him, then dementia and parallaxis cannot come too soon; such a "professional" were better in an asylum than free, better dead than living. I have more sympathy for suffering clients than for such idiotic practitioners. *Review.*

PRACTICAL POINTS.

Mrs. M. J. Walker, Bay St. Louis, Missouri.

Adhesive Fillings.—Gutta-percha, of size to suit the cavity, if warmed and touched with oil of cajeput, will stick to the walls when pressed in. Paper, wet with the oil, will give a smooth finish to the surface.

H. C. Meriam.

To Prevent Plaster from Adhering to Rubber Plates.—Coat the model with a thin solution of soap, in water, just before packing the case.

J. G. Templeton.

To Prevent Adhesion Between Plaster Impression and Cast.—While the impression is still very moist, paint with a strong solution of castile soap or a thin wash of collodion.

Or when the impression is dry, varnish with sandarac or shellac varnish in alcoholic solution.

J. D. White.

To Prevent Nervous Exhaustion from Protracted Operations:

R.—Potassium bromid..... gr. xx.
Cinnamon water..... $\frac{3}{4}$ ij.

Administer thirty minutes before operating.

Jno. S. Marshall.

Painless Pulp Devitalization.—Cocain crystals and arsenic, equal parts, made into a paste, with wood creasote. Apply to exposed pulp and cover with oxiphosphate. Let it remain for three or four days. Being absorbed very slowly, and the cocain acting as a local anesthetic, this application causes painless death of the pulp, and no pain is occasioned in its removal.

R. D. Crutcher.

To Restore Broken Corner of Pulpless Incisor.—Prepare root-canal as for Logan crown. Reduce enamel margins to flat surface. Fit a pin of fine gold to root-canal, passing through a hole in a piece of pure gold plate, fitted to the surface of the enamel margins, and extending to the line of biting-edge. Solder the pin to the plate, place in position, and build out corner to contour with wax. Remove and invest in plaster and marble dust. Remove the wax and melt in 22-karat solder. Finish off and cement to place.

E. R. Vaughn.

Root-Canal Filling.—Beeswax incorporated with fibers of cotton or floss-silk, makes "a perfect root-filling; non-irritating, non-conducting, easily and quickly manipulated, perfect barrier to microbes; fire alone can destroy it." Introduce on heated broach to flow the wax.

Southern Dental Journal.

Diagnosis of Pulp Stones.—With the finger-nail or an excavator scratch on the tooth. If irritation is due to the presence of pulp-stones, it will respond to the vibration produced on the outside of the tooth.

Dr. Thomas.

Capping Exposed Pulp.—Oxisulfate, mixed sufficiently thin to hang in a minute drop from the excavator and brought into contact with the point of exposure, will spread itself out over the surface with great evenness and form a perfect covering, without a trace of pressure. It will harden in two minutes.

W. D. Miller.

To Sterilize and Saponify Contents of Root-Canals.—Kalium-Natrium (two parts sodium, one part potassium); a very small portion to be introduced into canals on nerve-broach. Syringe out with weak solution of carbolic acid and water or peroxid of hydrogen.

Emil Schreier.

Painless Pulp Devitalization.—Moisten a thin dish of tough spunk with carbolic acid and prick into one side of it the smallest possible quantity of Squibb's arsenic. Place it, arsenic side down, on a glass slab, and dry out with bibulous paper. Apply directly to the pulp and seal in, without pressure, with a small piece of gutta-percha warmed in the lamp and mashed thin between thumb and finger. The pulp may be removed after four or five hours.

Le Roy Requa.

[Soft oxiphosphate is better than gutta-percha.—ED. ITEMS.]

Test Capping for Exposed Pulp.—Boric acid and white wax, each one part; oil sweet almonds and paraffin, each two parts.

H. Milling.

To Strengthen a Root for Crowning without the Use of an External Band.—Level the face of the root even with or below the gum. Enlarge the canal for reception of pin, and, with trephine, sink a groove between the canal and periphery of the root. With thin cement set a band of platinum or gold in the groove, projecting one-sixteenth of an inch, and entering the hollow space of the crown. Set the crown with cement or amalgam, as preferred. It is impossible for the root to split.

D. R. Jennings.

To Steady and Support a Perry Separator on Teeth with Very Short Crowns.—Soften a small piece of sealing-wax and mold it over the crown of the tooth, and beneath and around the bow of the separator, on each side. It will soon harden and prevent the separator from slipping or hurting the gums.

John Girdwood.

For Stomatitis :

R.—Cocain hydrochlor.....	grs. iss.
Sodii chlor.....	grs. xv.
Glycerin	3 ij.
Aquæ.....	3 iij.

Apply with camel's-hair brush, and spray frequently with a solution of boracic acid. Internally give bromides.

D. M. Sabater.

Removable Root-Canal Fillings.—Shape rods of lead, zinc or tin to fit, and imbed in the canal in a paste of tincture of benzoin and oxid of zinc. Allow the end of the rod to extend into the pulp chamber and turn the end over, filling over it with gutta-percha. In case of subsequent trouble, it is easily removed.

Jacob L. Williams.

Bleaching Teeth.—The old method by “Labarraque’s Solution” of chlorinate of soda, treated afterward with an alkaline solution and dried, is probably the simplest process we have, and offers the greatest probability of permanent success.

A. W. Harlan.

Antiseptic Root-Canal Filling.—Work down to the apex, with fibers of cotton on a broach, a mixture of campho-phenique, iodoform and zinc oxid, and then insert a gutta-percha cone, moistened in chloroform.

Chas. Harken.

In treating pyorrhea I have attained better results by directing patients to rub their fingers on the gums with listerin, than with anything else. Many cases have been kept in good condition in that way. You do not always need a syringe to remove the food deposited in these pockets. The constant accumulation of food and of micro-organisms continues the disease, and the use of the fingers to rub the gums I find to be an excellent substitute for the syringe.

J. B. Littia.

The following way of making a permanent crown (porcelain) for broken-down bicuspid is original with me “as far as I know,” and may be useful to others:

Prepare root as in Richmond crown; fit band and solder top on it, making a small cap over root. Punch a hole in this cap large enough to allow the pin of a Logan bicuspid crown to enter. Grind porcelain to set close to cap, making a good joint, then solder in place. Mount as a Richmond. You have a strong, artistic piece of work.

J. Harbin Pallock, D.D.S.

ITEMS.

Have no fear of discoloring teeth with nitrate of silver. The discoloration produced, if objectionable, can be easily removed by an application of iodid of potassium manipulated with soft pine or orange wood stick and pumice.

Southern.

* * *
Referring generally to all kinds of impressions, a difficulty is sometimes experienced in removing them from the mouth, owing to suction. In this case request the patient to cough slightly. The effort will elevate the soft palate, letting the air between, rendering the removal no longer difficult.

F. Molloy.

* * *
I see under "Notes" in last issue of ITEMS that a new porcelain has been obtained from asbestos. Do you know whether this porcelain has been made into teeth? It strikes me that if we could get facings made of such a porcelain that the breaking during the soldering process might be obviated.

E. P. Beadles, Danville, Va.

* * *
Often after a black rubber plate is polished, it presents a very inferior color, a grayish-black. This may be removed by the application of carbon bisulfid. Dampen a cloth with the solution and rub the plate vigorously wherever required. It is well to wash the plate thoroughly after the use of this solution, as there might otherwise be a tendency to nausea.

S. Burns.

* * *
Hand work is capable of versatility, adaptability, and individuality in much higher degree than machine work, and where these are important, as in the nice shades of difference in the forms and contours of tooth restorations, the engine should be used sparingly and carefully, and much work done by hand, even though the time required be longer.

Edmund Noyes.

* * *
Dr. Dingwell, dentist, uses areated hypnotic for painless operations. Corner Fifth avenue and Second street.

EDITOR ITEMS.—The above advertisement was clipped from the *Clinton County Advertiser*, of Clinton, Iowa, March 10th, 1894. Can you give me any information in regard to this new "areated hypnotic" for painless operations? I have heard of areated bread. Can it be possible the doctor is administering bread pills to his patients for painless operation?

F. Clinton, D.D.S., Elmira, N.Y.

EDITORIAL.

WHAT IS THE CAUSE OF CARIES?

We hear much about microbes being the cause of caries ; anon the whisper : Are they not more the effect than the cause? Must there not first be a pathological, a diseased condition, a disintegrating cause, to produce them? We hear of the extreme acidity they produce when at work, as generation after generation die every moment. But did they produce the acidity, or did the acidity produce them? To make brandy, the juice and some of the pulp of the grape are first allowed to ferment till the stench is terrible ; then to produce alcohol this proceeds to rottenness till it is fairly alive and astir, foaming and surging with wriggling, struggling life, from the minute microbes to worms that crawl. So cutting and biting and devouring is it in the stage of acidity, that it can consume animal or metal. Did these worms cause the acidity, or did the acidity cause the worms? Certainly if any acidity and microbes in the mouth would cause caries of the teeth, this seething tank of fuming fermentation would. Yet it will not. Put teeth in it in all stages of caries, and caries will cease its ravages, and the cavities will be cleansed rather than made worse. Even when this fluid proceeds from acidity and fermentation to rottenness, caries will not progress.

Are we sure the popular idea is true that acidity is the chief cause of caries? It will soften the teeth by removing the earthy portion, but is it as active as generally supposed in causing caries? It is true, if we test the mouth while the teeth are decaying, we find acidity—sometimes ; but sometimes alkalinity, and at other times neither. In some mouths at the same time we find the litmus paper turns red in one part of the mouth and blue at another, and not effected at another. Do we find enough acidity in association with any decaying teeth to satisfy us that this was the chief cause of caries? Acid sometimes acts as a prophylactic. Even those who harp on lemons being so injurious to the teeth,

admit that decaying meat on and between the teeth is worse. But there is little acid in decaying meat. Flesh eaters are not as much subject to caries as vegetarians. Meat must be changed to something else before injury can result. It must generate nitric acid and ammonia—one a strong acid and the other a strong alkali—and these must coalesce to form nitrate of ammonia. During the nascent stage, this union is a powerful corrosive and solvent. Its disintegrating character is the greatest foe to teeth. But even these extremes neutralize each other by their union, and become quiescent. The terrible battle takes place when they first come together, and woe to any animal or metal substance that stands in the way.

Caries of the teeth evidently results from faulty structure and pathological conditions, as well as from attacks from without. And this internal disorder cannot be determined by the condition of the rest of the body. We have abundant proof that there may be general enervation and special organic disease—prostration and disorder everywhere—and the teeth remain healthy. Then, again, the teeth may show every evidence of being sick, while the general health remains good. Also, teeth in the same mouth kept scrupulously clean, will take on decay, in spite of all our efforts to prevent it, while teeth in some mouths never cleaned remain healthy. And when caries is found on the teeth, it is not all of the same character. In the same mouth, at the same time, and under similar environment, teeth are attacked differently. One tooth will have white decay, another brown; one will crumble like chalk, another be soft like layers of leather; one will have a small external opening with extensive and deep decay underneath; in another caries will be shallow, spread over the surface only; one will be decaying on the grinding surface, and we ascribe it to a fissure, another where there is no fissure on the smooth, solid, polished buccal surface, constantly washed by the teeth; one will have proximal decay, another, and right by its side, its neighbor, will have cervical decay; on one the decay will be so rapid as to fall to pieces almost while we are treating it, another so slowly we neglect it with impunity; the caries of one is easily controlled, another defies our best treatment; in one a filling lasts a lifetime,

in another, filled at the same time with similar material and quite as thoroughly, lasts but a year or two; in some the disorder permeates the whole tooth, without any visible cause or marked external decay—it just seems to fall to pieces; in another the defect is distinctly circumscribed in extent, depth and character; in one an insidious speck will appear—a mere “pin hole” that hardly arrests attention, yet as we explore for filling, we reach almost to the pulp, on another so completely is it confined to the enamel that it peels off, or can be so cleanly scraped off that it leaves the demarkation between the enamel and dentine clearly defined, and though the dentine is left without protection, a good filling is sure to save the tooth. Some teeth decay while acid prevails, others in the midst of alkalinity; some in the early years of life “melt away as frost before the sun,” others mark proud maturity, and others defy sturdily all attacks till old age.

Well, while we ascribe this decay to miasm, and that to specific disease, some general attack on the teeth to “general debility” or “constitutional diasthesis,” whoever these personages may be; this to immaturity and that to faulty construction; this to poverty of supply and that to rapid growth; this to inflammation and that to atrophy; now to a want of cleanliness and then to injuries by the tooth brush, and so on through the changes, we have to acknowledge that we have still something to learn.

“ALLOYS AS NOSTRUMS.”

Under this head, Dr. J. Morgan Howe, of New York, attacks alloys in general as being nostrums—like medicines, the ingredients of which are not made public.

We had thought the time long gone by since this could be said of alloys. Every dentist is now supposed to know the ingredients of the amalgam, alloy and cement he uses.

Dr. Howe says: “In the use of alloys and cements, that are almost all of them proprietary and secret preparations, are we not certainly chargeable with being lacking in professional spirit, as well as preventing progress?” In view of the publicity given by

manufacturers of the ingredients of their alloy, amalgams and cements, this seems silly. Is Dr. Howe the veritable Rip Van Winkle, that he gives vocality to what might have been true before his twenty years' slumber? Dr. J. Foster Flagg has published quite an exhaustive treatise on this subject. He not only gives the formula of a large variety of his own, but the ingredients of many other makes in general use. We have so many times published the components of ours that we supposed every intelligent dentist knew just what our amalgam, alloy and cement were made of.

Some seventeen years ago, after we had spent much time and money in experimenting with what is now known as our gold and platina alloy, and after having used it for some time in our office, and given samples to a large number of leading dentists to use, we came before the New Jersey Dental Society with the formula, and explained the advantages we had discovered of the gold and platina in proper proportions with the silver and tin. It was not long before we received letters from one and another saying their melts did not work like ours. And one prominent dental professor said: "If you say there is platina in your alloy, you lie; for I am an expert metalurgist, and I know that no man can melt platina in a mix of gold, silver and tin."

At the next meeting of the State Society, we explained that it was evidently one thing to know the ingredients of a dental alloy and be told how to make it, and another thing to have the manipulative skill to bring the desired results. This became so evident by the discussion that followed, that the Society unanimously passed a resolution asking us to manufacture it for the profession. We appreciate the generous support of the profession.

A MISTAKE MANY SOMETIMES MAKE.

A lady came into my daughter's office the other day to consult her about two upper lateral incisors. They had been filled about a year previous. Both were small proximal cavities, yet both teeth were abscessed. Removing the fillings, a small retain-

ing point was found in each in the direction of, and quite into, the pulp chamber.

"Was not the drilling very painful?"

"Yes; but the dentist capped them, and assured me the nerves would soon heal over."

"But was there not subsequent trouble?"

"Yes, there was, and I went back to him twice, but finally all became quiet. But within the last three months they have troubled me again, and lately very severely."

All from a little carelessness; and we fear it is a mistake of many sometimes.

Another mistake is at times made by drilling retaining points into the thin enamel. Many a time a thin wall is thus weakened. It will sometimes split off under the pressure of filling, or afterward it will crack and finally break away. At times we made both these mistakes ourselves, till we abandoned retaining points altogether. It is not difficult to make the gold "stick," if the cavity is properly shaped and the first piece or two of the gold is properly placed, and held in with a fine plugger in the left hand till a little packing is done.

PLAY.

We know a business man in New York who is a wreck for want of play, and his wife is a wreck from being his slave, and his three children are idiots. He has a beautiful library, but it is never read; he has a beautiful garden and conservatory, but only the gardener enjoys the luxury of attending them; he has a beautiful home, but he has never been more than a boarder in it. Hurrying off to his business early, with only his cook to serve his breakfast, and returning late with his spirits flagged, body exhausted and mind burdened; with his nerves overstrained, his temper irritated and his whole atmosphere gloomy—what has he to give to his family? And what had the whole world to give to him for what he was giving away, throwing away, destroying? Long ago I said to him "you are a fool!" "Yes," he replied, "I have given to the

world three fools by my foolishness, and I shall soon be with them, for I find my mind breaking down as well as my body."

Blessed is the business man who has a hobby, especially if this hobby is to play with his children, cheer his wife, and marry his home; make his own garden, pick his own fruit, and inure his muscles to toil while his mind rests; still better, if from youth he keeps his health and spirits so bounding in vitality and joyfulness as to transmit to his children a healthy body and mind. Brethren, we are responsible for much there is, and is not, in our children. Visit our institutions for imbecile children, and learn their parentage. Look in the face and character of your own children and see yourself reflected.

There are dentists no wiser than this merchant, and just as foolishly lowering their vitality, exhausting their nervous powers, and bringing into the world imbecile and useless, or vicious and irresponsible children.

WAKE UP.

It is not the silent, smooth flowing stream that shows a rapid current. If it runs swiftly there are sure to be obstructions that seek to impede it. The very banks will be in its way, and it will show anger at confinement. It brooks no restraint and defies resistance. Its waters are restless, contentious, uproarious; splashing, dashing, crashing into obstructions; wrangling, battling, crowding for place; rising, plunging, pressing to the front, ever noisy, boisterous, tempestuous.

The silent dew and the quiet rain, the zephyr breezes and the mellow sunlight—these do not make epochs. It is the sweeping thunder storm and the awful tornado; the terrible downpouring and the mighty, rolling, uprooting avalanche; the yawning earthquake and the belching volcanos, whether of the physical, social, or moral world—these make revolutions, and revolutions make epochs, and epochs make men.

Rocked in the cradle of self-indulgence and charmed by siren songs, while stealthy morphia steals the senses and laughing imps carry us to oblivion—this is not the way to power and glory. To

wake some people to their danger and their opportunities needs a sweeping cyclone. Nothing else will stir up the dry dust that covers them.

Then let the wild wind blow, and the sweeping, tearing, uplifting whirlwind arouse the sleeping passions into fury. Let the howling, flashing, deafening storm come on, if only from its devastations comes energy. We little know what is good for us.

We would have life all sunshine, and time all leisure and pleasure, if we had our own way. But it is only when we can turn adversity into wisdom, enmity into love, and struggle into triumph—it is only:

“When we can smile at Satan’s rage,
And face a frowning world,”

that we can know the beatitudes of life.

Do not be discouraged. You and I have seen the most unpromising young man rise to distinction. You may do so. Find where you belong and stick to it till your position is mastered. However humble the place sow it with the most honorable acts, cultivate it with the most industrious habits, and fill your capacity so full of the harvest of good works that it will enlarge your powers, and demand more room. You will get it then. Do not be disheartened by delay, or by difficulties, or by the weight of circumstances. Just as surely as you grow larger than your sphere, you will rise above it. Only bide your time and be faithful in what you are and in what you do. You never saw a scholar yet who had thoroughly learned one book but was given another in the advanced series; you never knew a clerk that thoroughly swept and dusted, and kept himself and shelves in good order, that was not by and by called up higher; you never heard of a person full of learning and skill for any sphere who did not gravitate to it.

Have faith in yourself and in the world. Rise to your privilege. Though there be a wilderness before you, you will find your place if you seek it diligently and intelligently. Be persistent, concentrate your energies, go forward. As you go you will grow, mature and be invincible.

HINTS.

After exterpating the live or the dead pulp of a tooth, diluted sulfuric acid is among our best dressings to prevent abscess.

* * *

Rubber, used for separating teeth, when grown hard or stiff, will recover its elasticity if put in a vessel containing weak ammonia water.

* * *

However legitimate and praiseworthy our employment we need rest, recreation, diversion. One of the foremost theologians of England has gone mad because he allowed technical theology to absorb his whole nature. We are sure to act cranky and crooked and disjointed if we have no one to elbow us, occasionally, out of our beaten track.

* * *

Some men are ponderous; it is their nature to move slowly and work heavily, weightily, solemnly, in calculating and doing. Others move quickly, think sharply, and act instantly. Both are necessary; but though we could hardly get along without the former, as balance wheels, designers and steady plodders, the latter are the foremost in the great activities of the world. If you would ride, jump on quickly, for the train starts on time.

* * *

One of the rules of George W. Childs was never to spend a dollar before it was earned, and always to save a fourth of what he did earn.

That would make any of us rich. Let us try it for a year or two and see how it would work. It would certainly produce economy in spending and industry in acquiring. We would husband our time as well as our money, and improve in many respects, besides being economical.

* * *

Show me a man's handwriting and I will show you the man. There are many exceptions to this, but generally, if a man is careless in his penmanship and composition, he will be careless in everything else. So if you enter a slovenly, poverty-stricken dental office, you look for slovenly work, and a careless, unskilled workman. Sometimes a glittering office and a dandy suit of clothes may deceive us, but if appearances are made for a cloak, some weakness or ungentlemanly habit will peek out and tell the real character.

It is much better to wish well of our neighbor than ill; to seek the prosperity of a competitor than his adversity; to speak kindly of and to an enemy than harshly. A charitable word begets charity, a generous word begets generosity, and a kindness often makes a friend of an enemy. These qualities reflect on our own character, for we cannot speak venom without feeling a venom that makes our own life miserable. If we would have a light heart, a clear conscience and a happy life, we must be so filled with these qualities as that they will flow out of our hearts spontaneously.

* * *

That a betrothed woman should have no secrets from her fiancé is again exemplified in the case of the New York bride who swallowed her teeth while asleep the other night. Her husband awoke to find her in spasms of suffocation, but not knowing that she had false teeth, hardly recognized her without them, and could not diagnose her case. After considerable dangerous delay, he summoned a doctor, who pulled the plate out of the bride's throat and gave her a chance to make full confession to her spouse. For the opportunity to confess she should be deeply grateful. Had it been left for an autopsy to make the revelation, the husband might have buried his love with her.

* * *

AN ALLOY WHICH ADHERES TO GLASS.—M. F. Walter has found that an alloy consisting of ninety-five parts of tin and five parts of copper adheres so tenaciously to glass that it may be employed as a solder to join the ends of glass tubes. It is obtained by adding the copper to the tin previously melted, agitating with a wooden stirrer, casting or granulating, and then remelting. It melts at about 360° C. By adding from one-half to one per cent of lead or zinc the alloy may be rendered either softer or harder, or more or less easily fusible. It may also be used for silvering metals or metallic thread.

(*Rev. Scientifique.*)—B. and C. Druggist.

* * *

A CEMENT THAT WILL MEND ALMOST ANYTHING.—Mix litharge and glycerin to the consistency of thick cream or fresh putty.

The article mended should not be used till the cement hardens, which will require from one day to one week, according to the quantity used.

The cement will resist the action of acids, and of hot or cold water, and almost any degree of heat. It may be used for stopping leaks, filling cracks or small holes in kettles or wash boilers, securing loose boxes in wagon hubs, mending stone jars and a great many other breaks.

Health and Home.

FOR OUR PATIENTS.

“SHOULD WE EVER DECEIVE OUR PATIENTS?”

Yes, lots of times.

We all wear cloaks, and if they are worn to hide unavoidable defects and misfortunes, or to innocently relieve the unfortunate of their trouble, we do well to wear them.

Do we feel petulant, peevish and cross? Deceive your patients by wearing a cloak of dignity and self-control. Why should you shower your irritability on them? In their sufferings they need sunshine and cheer.

Are you angry at some indignity? Deceive your patients by appearing good-natured,—unless in the holy passion of your soul you believe you must show “righteous indignation” which you are sure is angelic, but even then you had better ask the angel where he came from.

Are you dyspeptic and gouty, gloomy and despondent, in trouble, or even bereaved? Don’t wear your grave clothes in to your office. Forget your private ills, as you assume a public role, and attire yourself in the pleasant robe of your professional character. Your patrons will be repelled by thunder-clouds and gloom.

Many suppose a dentist to be an awful creature, and his work butchery. Throw a cloak over that skeleton and present yourself as an angel of mercy. If there must be unavoidable pain, charm your patient by covering its most hideous features with the mantle of oblivion, and making the rest smile.

Some have no confidence in the durability of your work, nor in your professed interest in their welfare. If you can entrap them into confidence and save the teeth they persist in throwing to the dogs, you are justified in doing so. Catch them with guile, and make a friend of them for life.

My, what wicked creatures these dentists are to deceive their patients so!

A staid old maid came into our office to have a tooth out. It was very sore, but loose, and the two adjoining were in the same condition.

“Doctor,” she said, “I have come some distance to you, because I am told you are specially dexterous in extracting teeth. I have here three I want out; but I only want one out at a time. I am stopping at the hotel, and prefer to have my own way. I want but one out in a day.”

Feeling carefully of the one she would have out first, we remarked: "Madam, that is certainly a very sore tooth. All three have evidently given you much pain and anxiety. As you are not particular as to the time of your stay, suppose I leave the duration of the whole operation with you. It may be, you will not feel like enduring the extraction of one at the first sitting. I will be as dexterous as I am capable of, and leave to you when I shall stop."

"Oh, you are so kind," and she carefully adjusted the napkin I had given her, and leaned back with complacent resignation. In a trice the three were out, and, at this instance, she waved her hand for me to stop, reminding me of my promise.

"All right," we replied; "as I promised you, I stop the moment you tell me to."

"I did think I could stand it to have one out, but—why doctor! Did you take it out? What a queer man you are. Why, I do believe you took two out!" Putting her finger to her mouth, she exclaimed: "Is it possible? You took all three out! You darling man. How did you do it? When did you do it? Why, you were but a moment doing it all! I never did see such witchery. Twelve miles to have this little work done, and three days reduced to less than a second! Dear me, what is this world coming to?"

Not the least interesting phase of the movement which has brought the phenomena of suggestion to the attention of the scientific world within the last twenty years is that which deals with the therapeutic aspect of those phenomena. That suggestion has a therapeutic value no experienced physician will question. The confidence which the manner and bearing of the man and the fame of his past achievements inspires, is a factor whose importance in some cases all recognize. One often hears the physician say that every added year of experience adds assurance to his conviction that one can count little—with a few notable exceptions—on the specific effect of the drugs administered, and that the success of the medical man depends largely on his ability to keep the patient confident of recovery while "nature does the work for us." Thus, quite apart from the great significance of these researches to psychology and cerebral physiology, they have resulted in supplying a plausible scientific explanation for the so-called "cures of imagination" and "influence of the mind on the body," "modern miracles," and so on. They also suggest many ways in which we may determine the conditions under which we may expect such results, and the methods by which we may attain them.

W. R. Newbold, in Cosmos.

“SUPERFLUOUS SPECTACLES.”

Superfluous spectacles are those prescribed by incompetent persons. Who are they? Surely not the educated physician who, after years of preparation, drops into ophthalmology by a sort of natural affinity; surely not the man or woman, who, when examining the eye, sees not only an optical apparatus but a living being behind it. No. The incompetents are those half-hatched and abortive products ground out by the so-called “ophthalmic colleges.” These “colleges” are engaged in manufacturing opticians out of jewelers and oculists out of jays. Six weeks’ time suffices in either case to produce a diploma-bearing individual, who goes forth to prey on the credulity of the populace. These are the persons who are to blame for “superfluous spectacles.”

Every educated physician engaged in ophthalmic practice knows that many cases of asthenopia, in which refractive error exists, are not cured by glasses. The glasses are blamed, the oculist denounced, and regular medicine is brought into disrepute, all because too much confidence has been placed in the curative power of the lenses. In these very cases, glasses are needed because of the existence of error. The fact that asthenopic symptoms are not relieved by lenses should not lead us to regard such lenses as “superfluous spectacles.” Glasses will cure many strange symptoms—but they are not omnipotent. Often change of air, of occupation or the treatment of nasal disease; often the use of tonics and other constitutional treatment will be necessary. It is in such cases that the “eye oculist” of six weeks’ preparation will fail.

What is the remedy? Abolish the “Ophthalmic Colleges.” If they are valuable, why not establish rectal, genito-urinary, hepatic, stomachic and pancreatic colleges? Specialism in medicine has gone mad.

James Moores Ball, M.D., in Journal American Medical Association.

WHY DO VULCANITE UPPER PLATES CRACK?—1. Because they are too thin.

2. Because they are too thick.
3. Because they are vulcanized too hard.
4. Because they are vulcanized too soft.
5. Because they are badly articulated.
6. Because of the want of lower bicuspid and molars.
7. Because they are not worth a cent anyhow.

Dominion Dental Journal.

WOMAN'S HEALTH PROTECTIVE ASSOCIATION.

At the recent Sanitary Convention at Harrisburg, a paper was read by the Director of Public Safety of Philadelphia, Mr. A. M. Beitel, in which he paid a handsome tribute to the recent public work of an organization, the Woman's Health Protective Association of Philadelphia, for the great interest they take in the city's cleanliness and for the success they have had in forwarding complaints to the proper bureau for registry. The Director of Public Safety believes that the women of Philadelphia, through this quite inexpensive organization, will yearly make their work tell on the city's good order, and for the observance of sanitary regulations already provided, and will be potent aids in preserving the health of Philadelphia. This city, by its plan, and its favorable building developments, of a single house to one family, should have the smallest death rate of any in the world, for in no large city are the mass of the people so comfortably and decently housed. It only needs the education of the individual householder to do his or her part in every way, by vigilance and by voting, by setting an example both in personal care of premises and in reporting at once all nuisances in the neighborhood; an example, also, on the part of each voter in choosing loyal and business men to conduct the city's business in councils; it only needs this to have, in a few years, a transformed city, with clean water to drink, all places of pollution shown up and cleaned out, and not only the smallest death rate in the world, but the most comfortable city to live in. All of this the women may bring about if they will be ceaselessly vigilant and fearlessly outspoken.

Journal American Medical Association

R. Powell, a small man with a strong arm, came down town early this morning and entered the office of J. O. Clayton, dentist, in the Adams Express Building. Clayton had not yet arrived. Powell waited. When Dr. Clayton, who weighs 170, made his appearance, Powell hit him on the nose, banged him in the eye, again on the nose, and now and then on the jaw. By this time the dentist was almost "out." He pleaded for mercy, so Powell said a "bad" word to him and left.

An hour later Powell was arrested on two warrants. He said: "My wife went to Dr. Clayton yesterday to have a tooth filled. He smoked cigarets in her face, inflicted needless pain, and when she wanted to leave he told her there was another tooth that must

be touched up, and he would not let her leave the chair. Then he wore a big seal ring that made a lot of trouble. Mrs. Powell claims that this was persistently jabbed into her cheek or her eye."

Mr. Powell says he does not expect to bring about an era of absolutely painless dentistry in the immediate future, but he does expect that it will be understood from now on that it is not in conformity with the usages of good society to smoke cigarets while using a mallet on a lady's teeth. Dr. Clayton denies that he gave unnecessary pain.

World.

"ROOM AT THE TOP."

A large number of young men will soon engage in the practice of dentistry for the first time, independent of assistance from professors and teachers. They have heard there is always "room at the top;" their expectations are golden, and ambition is at its height.

In the beginning it must be remembered by the young men, that the "room at the top" is only for those who can fill the positions with dignity, skill and science; in other words, first-class, "all-round" men. There is no room for the one-sided candidate. A skilful manipulator will fail if undirected by standard science. A book-man will fail without the educated digital expertness. He may have both and yet fail if he is without a proper sense of his position in society. He may be skilful, scientific, and understand his relation to the world, yet he will fail if he is not kind, sympathetic, courteous—in short the true "gentleman."

The "room at the top" must and will be filled only by the gentleman who combines skill and science with the golden rule in all his life-work. No one need expect to succeed unless he is ready to fill these requirements, and he need not rail at Fate if friends and patrons demand this of him. They have a right to demand it, and he must seek other fields if he does not accept the trust with all that the trust implies.

Let our graduates then remember these words. We believe it is the truth. History has so proven it. Men who have been successful in our profession are everywhere examples of it, and every succeeding day and year will stamp success on the career of those who believe it and live it.

Western.

A lady patient recently gave expression to a reform in nomenclature which we commend to the notice of those who are studying this subject. We had a piece of rubber-dam in our hand, when she looked up and asked "Are you going to use that bit of 'elastic profanity' on this tooth?" Quite euphonic, and certainly very expressive.

Review.

NOTICES.

The eighth annual commencement of the Meharry Dental Department of Central Tennessee College was held at Nashville Tennessee, February 8th, in connection with that of the Medical and Pharmaceutical Departments.

The address to the graduating classes was delivered by Bishop J. M. Walden, of Cincinnati, and the degree of Doctor of Dental Surgery was conferred on the following:

M. C. Cooper, Dallas, Texas; G. W. Miller, M.D., Nashville, Tenn.; A. F. White, Jacksonville, Fla.

Ten dental students have been enrolled during the past session. The graduates of former years have been well received by the dental profession of the South, and are meeting with good success in their work.

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The twenty-sixth annual meeting of the Georgia State Dental Society will be held at Hotel Tybee, Tybee Island, Ga., June 13th to 16th. A most cordial invitation is extended to the profession to meet with us at this beautiful seaside resort.

O. H. McDonald, Cor. Sec.

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The South Dakota Dental Society will meet at Parker, S. D., June 12th, 13th and 14th, 1894. An invitation is extended to practitioners of South Dakota and adjoining States.

O. M. Robinson, Sec.

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The thirtieth annual meeting of the Missouri State Dental Association will be held at Excelsior Springs, Mo., July 10th, 11th, 12th and 13th, 1894.

We have reasons for believing that this will be one of the most enthusiastic and beneficial meetings ever held in the State.

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The Dental Department of the University of Maryland has just ended quite a successful season. It matriculated 145 students.

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The Dental Department of Vanderbilt University did well this year. There were 129 students, 2 were ladies, and 25 graduates.

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The Colorado State Board of Dental Examiners will hold a meeting for the examination of applicants to practice dentistry July 6th, 1894, in Denver.

C. N. Guyer, Secretary.

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The seventh annual meeting of the Washington State Dental Society will be held in Tacoma, May 24th, 25th and 26th, 1894.

MIDWINTER DENTAL CONVENTION.—This convention of the Pacific slope will be held at San Francisco, Cal., beginning the second Tuesday in June, 1894. The membership fee is \$10, which will entitle any eligible dentist to membership and the transactions.

The American Medical Association meets at the same place one week earlier.

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CHANGE IN DATE OF THE NEW JERSEY JULY EXAMINATIONS.—The New Jersey Dental Commission will hold their summer examinations at No. 88 Broad street, Elizabeth, N. J., commencing on the second Tuesday in July, instead of the third Tuesday as heretofore. Applications should be in the hands of the Secretary by June 26th.

G. Carleton Brown, Secretary.

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The Busy Dentist is a new dental journal edited and published by T. P. Hinman, D.D.S., Atlanta, Ga. It wades right into subjects just as though it had already learned to swim. Nothing about it shows immaturity or inexperience. Send on your dollar, and make it your familiar friend.

* * *

Dr. D. W. Baker, of Brooklyn, has gone a little outside of his sphere as a dentist to show the medical profession how to prevent epileptics biting their tongue during fits. His device is quite ingenious.

* * *

The South Dakota State Board of Dental Examiners will meet and be in session at Parker, South Dakota, June 13th and 14th, 1894. Any one who wishes to appear before the Board for examination in dentistry at that time, also any desiring certificates or diplomas are requested to give thirty days' notice, with a remittance of ten dollars, to the Secretary at Yankton, South Dakota.

W. H. H. Brown, Secretary.

* * *

Dr. William H. Steele, of Forest City, will soon be ready with a second volume of his *Useful Dental Hints*. He writes us that he has spent much time on it during the last twelve months, and is confident it will be more popular than even the first volume.

* * *

Pomegranin—an alkaline extract from the pomegranit—is a new favorite for local anesthesia. Dr. W. G. Ebersol, of Wilmington, Ohio, says he has tried it with success, and believes it is better than cocain.